

REASON, RELIGION, AND PLATO: ORPHISM AND THE MATHEMATICAL MEDIATION BETWEEN BEING AND BECOMING

A thesis
submitted in fulfilment
of the requirements for the Degree
of
Doctor of Philosophy in Philosophy
in the
University of Canterbury
by
Stephen Peter McNicholl

University of Canterbury
2003

B
398
M3
M169
2003

TABLE OF CONTENTS

TABLE OF CONTENTS iii

TABLE OF FIGURESvi

ABSTRACT vii

ACKNOWLEDGEMENTSix

NOTE REGARDING TRANSLATIONSxi

Chapter One: Introduction.....1

 1.1 Statement of Purpose2

 1.2 Summary of Content.....7

PART ONE: LITERACY, AND THE RISE OF THE ORPHIC PHILOSOPHER 13

Chapter Two: The Advent of Literacy15

 2.1 Overview: From Orality to Literacy17

 2.2 Myth-making, Mnemonics, and Mimesis19

 2.2.1 Myth19

 2.2.2 Mnemonics21

 2.2.3 Mimesis22

 2.3 The Advent and Adoption of the Alphabet24

 2.4 The Ascent to Abstraction via the Alphabet27

 2.4.1 Redundancy of the Scribe — Literacy in Education27

 2.4.2 Alphabetic Attack upon the Art of Memory29

 2.4.3 Abstraction.....30

 2.4.4 The Transformation of *Truth* Toward Timelessness33

 2.4.5 The Theoretical Attitude of Thought40

 2.5 Making of a New Morality41

 2.6 The Pre-Socratic Philosophers as Precursors to the Platonic Paradigm.....45

 2.6.1 The Presocratics as Philosophic Pioneers45

 2.6.2 The Milesians (*fl.* c. 585 – 545 BC)46

 2.6.3 Xenophanes (c. 570 – 475 BC)48

 2.6.4 Heraclitus (b. c. 540 BC)50

 2.6.5 Parmenides (c. 515 – 445 BC)52

 2.6.6 Empedocles (c. 495 – 435 BC)55

 2.6.7 Literacy Among the Presocratics56

 2.6.8 The Presocratic Achievement.....57

 2.7 Plato — the Champion of a new Cultural Form.58

Chapter Three: The Advent of Orphism.....	68
3.1 The Religious Setting	70
3.2 The Orphic Movement in Ancient Greek Culture	71
3.3 The Apollonian – Dionysian Dual Religious Impulses	71
3.3.1 The Apollo – Dionysus Duality as an Interpretive Framework	71
3.3.2 Dionysus	74
3.3.3 Apollo	76
3.4 The Apollonian – Dionysian Synthesis in the Advent of the Orphic Movement	78
3.5 The Orphic Shift in Anthropology.....	83
3.5.1 The New Myth of Mankind.....	83
3.5.2 The Holism of Homeric Man	84
3.5.3 Orphic Body-Soul Dualism.....	92
3.5.4 The Immortality of the Soul.....	102
3.6 The Cultural Importance of Orphism	103
Chapter Four: The Orphic Philosopher.....	105
4.1 The Orphic Bard Turns Philosopher.....	107
4.2 Presocratic Orphism	108
4.3 Pythagorean Orphism	116
4.3.1 The Orphic-Pythagorean Philosophical Synthesis	116
4.3.2 Interpreting the Early Pythagoreans.....	116
4.3.3 Pythagoras as an Orphic Philosopher.....	119
4.3.4 Tonal Transposition: From Orphic <i>Mousikê</i> to Pythagorean Harmonic Theory ...	124
4.3.5 The Pythagorean Mathematical World-Order	128
4.4 Platonic Orphism	130
4.4.1 Plato as an Orphic Philosopher	130
4.4.2 Explicit References to Orphism in Plato.....	131
4.4.3 Plato as the Champion of Orphic-Pythagoreanism.....	134
4.5 Philosophical Anthropology: The Orphic Soul becomes Rational.....	137
4.5.1 The Priority of the Rational in Man for the Presocratics.....	137
4.5.2 The Pythagorean Rational Soul.....	138
4.5.3 Reason as the Highest and Immortal part of the Soul in Plato.....	139
4.5.4 The Way of Philosophy as the Purification of the Soul in Plato.....	142
Chapter Five: Mathematics in the Making	144
5.1 Mathematical Practice among the Ancient Babylonian and Egyptian Cultures.....	146
5.1.1 Ambiguity of Mathematics.....	146
5.1.2 Egypt and Babylon as Precursors to Greece.....	147
5.1.3 Egyptian Mathematics	148
5.1.4 Babylonian Mathematics	149
5.2 The Shift Towards the Mathematical Practice of a Philosophical Culture	153
5.2.1 Mathematical Abstraction among the Presocratics	153
5.2.2 The Contrast with Euclid.....	158
5.2.3 Effect of the Literacy Shift upon Mathematics.....	160
5.2.4 Effect of the Anthropological Shift upon Mathematics	162
5.3 Classical Greek Mathematics: Toward a Deductive Geometry.....	165

PART TWO: PLATO AS ORPHIC MATHEMATICIAN 167

Chapter Six: The Mathematical World of Plato 169

6.1 Mathematics as the Medium of the Cosmos	171
6.2 Platonic Cosmogony.....	172
6.2.1 Cosmogonic Context	172
6.2.2 <i>Timaeus</i> Theogony	173
6.2.3 <i>Timaeus</i> Cosmogony as Orphic Theogony.....	178
6.2.3.1 <i>Chronos</i>	178
6.2.3.2 <i>Anangkê</i>	180
6.2.3.3 The Elements.....	186
6.3 Being, Becoming, and the Receptacle-Space	189
6.3.1 Myth as the Language of Becoming	189
6.3.2 Being Imaged into the Receptacle.....	192
6.4 Mathematics as the <i>Way</i> of Imaging	198
6.4.1 The One, and the Indefinite Dyad	198
6.4.2 The Mathematical Proportions Between the Elements.....	206
6.4.3 The Geometric Basis of the Elements.....	209
6.5 The Mathematical Cosmos.....	220

Chapter Seven: Mathematical Katharsis 221

7.1 Plato's Mathematics as <i>Katharsis</i>	223
7.2 The Philosopher's Preparation for Death: <i>Phaedo</i>	224
7.3 The Ascent to the Divine: <i>Symposium</i>	230
7.4 The Education Syllabus: <i>Republic</i>	237
7.4.1 Mathematics in the Syllabus	237
7.4.2. The <i>Way</i> that Mathematics Purifies the Soul, and Guides it to Being.....	240
7.4.2.1 The Five Mathematical Sciences as the Guide to Purification	240
7.4.2.2 Arithmetic (<i>Republic</i> 522c – 526c)	240
7.4.2.3 Geometry (<i>Republic</i> 526c – 527c).....	245
7.4.2.4 Solid Geometry (<i>Republic</i> 527d – 528d).....	246
7.4.2.5 Astronomy (<i>Republic</i> 528e – 530c).....	247
7.4.2.6 Harmonics (<i>Republic</i> 530c – 531c)	248
7.5 The Divided Line: <i>Republic</i>	249
7.5.1 The Divisions of the Line.....	249
7.5.2 The Question of Mathematical Intermediates.....	252
7.6 Liberation from the Cave: <i>Republic</i>	261
7.7 The <i>Macrocosm</i> – <i>Microcosm</i> Mediation	263

Chapter Eight: Epilogue 265

8.1 The Platonic Vision	266
8.2 Plato and Myth.....	267
8.3 Concluding Remarks	275

WORKS CITED..... 277

TABLE OF FIGURES

FIGURE 1 – From, Guthrie, <i>Orpheus and Greek Religion</i> , plate 6	81
FIGURE 2 – From, Guthrie, <i>Orpheus and Greek Religion</i> , plate 4	81
FIGURE 3 – From, Guthrie, <i>Orpheus and Greek Religion</i> , p. 223	110
FIGURE 4 – From, Fideler’s introduction to Guthrie, <i>The Pythagorean Sourcebook</i> , p. 27, fig.7.....	126
FIGURE 5 – From, Gillings, <i>Mathematics in the Time of the Pharaohs</i> , p.137, fig. 13.1	149
FIGURE 6 – AO 8662, copied by Neugebauer, <i>Mathematische Keilschrifttexte II</i> , Table 35. Reprinted, van der Waerden, <i>Science Awakening</i> , p. 64, fig.17..	150
FIGURE 7 – From, MEDhelpNET, www.medhelpnet.com/caduceus.html , (3 April, 2003)	182
FIGURE 8 – From, Cornford, <i>Plato's Cosmology</i> , p. 233	217
FIGURE 9 – From, Cornford, <i>Plato's Cosmology</i> , p. 234	218
FIGURE 10 – From, Cornford, <i>Plato's Cosmology</i> , p. 238	218
FIGURE 11 – From, Cornford, <i>Plato's Cosmology</i> , p. 238	218

ABSTRACT

What does religion have to do with philosophy? More specifically, what does a long-abandoned 6th c. BC Greek mystery religion have to do with Plato, to whose intellectual contribution all the rest of western philosophy is sometimes said to be footnotes? I argue that the role played by mathematics in the philosophy of Plato is integrally influenced by Orphism. Plato transformed the distinctive Orphic anthropological, eschatological, and theogonic concepts into a philosophical system. His work largely secured the cultural conditions necessary for the very practice of philosophy.

In Part One I delve into just how different culture was before Plato from what it must be like in order for there to be philosophy. I consider Orphism as a novel mythological form, synthesising Apollonian and Dionysian religious motifs. I examine some of its intellectual effects. In Part Two I consider what was to come from this under Plato's own masterful influence. In these ways I resuscitate a once traditional emphasis on Orphism in the understanding of Plato. But I bring a greater than usual attention to bear upon mathematics.

ACKNOWLEDGEMENTS

I would like to thank the following people, without whose varied assistance this thesis would not have taken shape.

Special thanks is extended to my supervisor, Dr. Philip Catton, of the Department of Philosophy and Religious studies, University of Canterbury. Dr. Catton has laboured long and hard in his supervisory role. The very many discussions, interactions, and readings of my material, were utterly invaluable in ensuring that this thesis finally materialised. I am deeply grateful for all his guidance and support in this long process of writing a dissertation.

I also extend warmest appreciation to my co-supervisor, Dr. Paul Studtmann, of the Department of Philosophy and Religious studies, University of Canterbury. He took upon himself the gruelling task of reading through my whole thesis as it stood in its very first draft form, and provided invaluable comments regarding my interpretation of Plato.

Particular thanks are also bestowed upon Dr. Patrick O'Sullivan and Associate Professor Dr. Robin Bond, both from the Department of Classics, University of Canterbury. Dr. O'Sullivan provided much needed direction regarding secondary sources, as well as comments and advice, throughout the course of numerous discussions (most of which involved free food and drink which was also lovely). Dr. Bond assisted me with some obscure questions regarding the Greek in Homer, and also provided helpful comments and thoughts along the way. In addition, he very kindly passed on to me a copy of his own translation of the Greek tragedies.

I am indebted to my two external examiners: Dr. Dougal Blyth, of the Department of Classics and Ancient History, University of Auckland, New Zealand; and, Dr. Dirk Baltzly, of the Department of Philosophy, Monash University, Australia. Both Dr. Blyth, and Dr. Baltzly made extensive comments and criticisms concerning my thesis, well beyond the call of duty. Many of their helpful recommendations have been incorporated into this final version.

Two further names need special mentioning, with regard to academic acknowledgements. Dr. Tom Bestor was one of my undergraduate lecturers (from Massey University at the time). It was he that inspired me to continue further studies in the area of ancient Greek philosophy, and Plato in particular. Without his wonderful way of teaching and presenting material I would never have decided to continue in the direction I have. Dr. Chris Gousmett, now resident in Upper Hutt, set aside a weekend to discuss this thesis with me whilst it was in its very earliest stages. Dr. Gousmett's own expertise lies in patristic anthropology, theology, and philosophy of religion, and many themes from these fields have rubbed off into this thesis. I am most appreciative not only for that initial conversation, but for the many times we have met and conversed over the years.

To the University of Canterbury itself, I offer my sincere gratitude in granting me a Doctoral Scholarship from 2000 until 2003. Without this much needed financial support I would never have been able to begin, let alone complete, this thesis. To the Department of Philosophy and Religious studies of the University of Canterbury, I am most thankful for the many hours of wonderful experience they supplied for me as a teaching assistant, in both first and second year philosophy courses, and in particular second year ancient Greek philosophy, which provided a wonderful opportunity to dig deeper and further into my own field of study.

To my family, more than anything, I owe my deepest heartfelt gratitude and appreciation. Their undying commitment and support over the many years has been beyond compare. To them I shall always owe that wondrous debt of love.

Finally, I extend a generous thank-you to all of the other various people who have helped me, each in their own unique ways, during the process of writing this thesis. The list of names in this regard would be too long to mention here. But to each and every one I am truly grateful.

NOTE REGARDING TRANSLATIONS

Throughout this thesis I have had recourse to refer, in English translation, to three main bodies of ancient texts: The Presocratic philosophers, Plato, and Aristotle. The English editions I have employed for these three main bodies of texts are as follows:

- (1) The Presocratics — all references use the DK (Diels and Kranz, *Die Fragmente der Vorsokratiker*) citation system. Where not noted, the translations are from Cohen, *et al* (eds.), *Readings in Ancient Greek Philosophy from Thales to Aristotle*, and, Freeman, *Ancilla to The Pre-Socratic Philosophers*. Translations are also taken from Kirk, Raven, and Schofield, *The Presocratic Philosophers*, and McKirahan, *Philosophy Before Socrates*, and these are noted in the thesis where they occur.
- (2) Plato — all references to Plato use the Stephanus numbering system. Where not noted, translations are from Hamilton and Cairns (eds.), *Plato - The Collected Dialogues*. Translations are also taken from, the English editions of Plato from the *Loeb Classical Library*, John M. Cooper (ed.), *Plato — Complete Works*, W.D. Woodhead, (ed. and trans.) *Plato — Socratic Dialogues: Containing the Euthyphro, the Apology, the Crito, the Phaedo and the Gorgias*, and F.M. Cornford, *Plato's Cosmology*. These are all noted in the thesis where they occur. In general I have compared the quoted passages from Plato against other English translations of them (as well as comparing them, to the limits of my ability, against the Greek) in order to ensure as far as I can the fidelity of my interpretation to the original.
- (3) Aristotle — all references to Aristotle, including the fragments, are from Barnes (ed.), *The Complete Works of Aristotle*.

All editions are cited in full in the Works Cited section of this thesis. Further references to other ancient Greek or Latin sources not covered here are cited where they occur in the thesis.

Chapter One:

Introduction

In my beginning is my end

— T.S. Eliot, *Four Quartets*, East Coker, I

1.1 Statement of Purpose

This thesis focuses on the role that mathematics plays in the philosophy of Plato. I argue that in order to interpret deeply, or even faithfully, how mathematics figures in Plato's philosophy, we must study Plato's philosophy in the context of two crucial cultural influences, namely:

- (1) the shift from an oral-mythical way of life, to a literate-philosophical way of life, which occurred *c.* 600 BC in ancient Greece;
- (2) the advent of the Orphic mystery religion, also *c.* 600 BC in ancient Greece, and its effect upon the then developing philosophical way of life.

Ancient Greece gave rise to a nexus of novel cultural enterprises. A written alphabet first occurred, the mystery religion of Orpheus began, philosophy itself took shape, and mathematics as a theoretical discipline entered the stage of western history. All these cultural changes, I argue, are not *disparate* and *isolated* historical contingencies. Rather, they feed off and intertwine with each other to such an extent that they fashion an integrated complex whole. In order to understand faithfully this shift in Greek culture we are required to set each change in connection with all the others.

So far as I am aware no major work which treats of the function of mathematics within Plato's philosophy has brought together, into an historical synthesis, all these various cultural, religious, philosophical, and mathematical changes each occurring in ancient Greece.¹ The atomistic temperament of our own generation of scholarship, which I here resist, urges investigators to treat of these aspects in isolation from one another.

Contemporary scholarly works on the subject typically attend almost exclusively to mathematics. At best, these consider simply in relation to Plato's broader metaphysics the mathematics that was dealt with by Plato's contemporaries and known to Plato.² There is

¹ Morgan, *Platonic Piety*, is very good, and comes close to such a synthesis, in that his discussion of Plato's religiosity takes into account the importance of mathematics. His treatment of mathematics in Plato's own piety, however, is tantalisingly brief, and invites unpacking in a fuller way. Although expertly placing Plato and the dialogues within the political context of ancient Greece, Morgan does not deal with the shift from orality to literacy, which I consider to also be of paramount importance for understanding Plato.

² For examples of book length works, see, Pritchard, *Plato's Philosophy of Mathematics*; Wedberg, *Plato's Philosophy of Mathematics*.

a tacit and, in my view, objectionable assumption that the wider kind of consideration I undertake in this thesis would be irrelevant.

Michael Morgan, in his own study on Plato, rightly notes this reluctance of much contemporary philosophical scholarship, to understand Plato in his own historical setting. Morgan states,

At the same time, within the broad circle of philosophical readers, one tendency has become dominant, at least since the mid-1950's, and that is the tendency to approach Plato (and not only Plato) as if he were a contemporary philosopher dealing with current, indeed timeless philosophical problems, whose work can be translated into or at least interpreted by contemporary philosophical terminology, and whose arguments, distinctions, and claims can best be identified and assessed against the background of contemporary philosophical discussion.³

Morgan views his own work as breaking this a-historical trend, and emphasises the need to interpret Plato radically, and thoroughly, within Plato's own cultural and historical context. He further states,

In one sense [Morgan's work] might be viewed as an attempt to revive an older mode of reading Plato, a mode of reading associated with such outstanding classicists as Burnet, Taylor, Cornford, Hackforth, Bluck and Guthrie. In another sense, however, [Morgan's study of Plato] could be conceived as a contribution to a recent movement, an attempt to treat Plato as others have treated Machiavelli, Hobbes, Locke, Hegel, and Bentham, among the great figures in the history of philosophy.... There is a contemporary "movement" toward rethinking great philosophers in their historical context....⁴

Along with Morgan, I identify my own thesis here, as an attempt to enter into this task of refashioning an interpretation of Plato that does full justice to his cultural, historical, and religious context. As such, and again along with Morgan, this thesis also hearkens back to, and draws upon, the scholarship of the great classicists, in particular, F.M. Cornford and W.K.C. Guthrie. Whilst not agreeing with them on all points, I consider their more *historical* scholarly method to have greatly inspired my own approach to Plato.

In the area of Greek piety, extant works on Orphism primarily discuss what today would be classed as the *religious* side (in a very narrow sense) of ancient Greek life, without expanding upon how this merges together with ancient Greek political, social,

³ Morgan, *Platonic Piety*, p. 4.

⁴ Morgan, *Platonic Piety*, p. 5.

and philosophical life. Plato is occasionally set in this Orphic context, but most often not with any strength or clarity.⁵

Scholarship on the subject of Orphism in ancient Greece has itself undergone a rather turbulent history. In the 19th century, scholars often maintained that in the 5th century BC Orphism had exerted a robust cultural influence. They urged, furthermore, that Orphism significantly affected Plato. In the first half of the 20th century, scholarship tended towards a more reactionary, minimalist mindset.⁶ By and large a distinctive *Orphic* religious movement was relegated to being merely a *rumour*, or a later Hellenistic invention. It was essentially disregarded as a significant religious influence in the 5th century BC.

Scholarship since that time has adopted a more cautious path. New light has been shone into the scepticism of Orphic scholarship, due to crucial archaeological discoveries within the previous generation. In Derveni, January 1962, a fragment bearing a theogonic hymn was discovered and later identified as Orphic in both origin and content. It has since been dated to the 4th century BC.⁷ This provides for us the long needed textual evidence that there was indeed a vibrant Orphic movement dating back to at least the 5th century BC.⁸ Along with this is the evidence from Olbia, of 5th century BC graffiti (first published in 1978) which contains the term '*Orphikoi*' (or '*Orphikon*'), along with such phrases as '*sôma psuchê*'.⁹ Contemporary Orphic scholarship is now once again

⁵ Guthrie, *Orpheus and Greek Religion*, is rather disappointing in this regard, in that it devotes far too few pages to the place and role of Plato in relation to ancient Orphism. Exceptions to this oversight are to be found in, Feibleman, *Religious Platonism*; McGahey, *The Orphic Movement*; and of course, Morgan, *Platonic Piety*, which skilfully emphasises the Orphic background to many elements within the Platonic dialogues.

⁶ Scholars such as: Wilamowitz-Moellendorff, *Der Glaube der Hellenen* (1932), II, pp. 193ff; Festugiere, *Revue Biblique*, 44 (1935), pp. 372ff, *Revue des etudes anciennes*, 49 (1936), pp. 306ff; Thomas, *Ἐπεκείνα: Untersuchungen über das Ueberlieferungsgut in den Jenseitsmythen Platons* (1938); Linforth, *The Arts of Orpheus* (1941). All cited by Dodds, *The Greeks and the Irrational*, p. 168, n. 79. Dodds also makes this same point, concerning the reactionary minimalism of early 20th century Orphic scholarship. He further notes that a 'spirited counter-attack on this "reactionary" scepticism was delivered in 1942 by Ziegler, representing the Old Guard of pan-Orphists'. Dodds himself, however, sides more with the sceptical approach, than these defences against it.

⁷ See, West, *The Orphic Poems*, pp. 75ff, for a discussion of this.

⁸ The Derveni papyrus, written in the 4th century BC, represents the later codification of an, at least, 5th century BC Orphism. See, West, *The Orphic Poems*, p. 108.

⁹ See, West, *The Orphic Poems*, pp. 17-18; Kahn, *Pythagoras and the Pythagoreans*, pp. 20, n. 37.

vigorously open to the historical study of a classical Greek Orphism, predating the Hellenistic age.

The time is ripe, I believe, to renew and reinvigorate this kind of historical framework for understanding Plato, namely, one that interprets Plato as essentially *an Orphic inspired philosopher*.

In particular, I believe the time is long overdue to propose an interpretive framework for Plato's treatment of mathematics that breaks through much of the atomistic and isolating contemporary scholarship on this matter. This framework must not only elucidate Plato's own metaphysical scheme, but also consider the broader cultural forms of Orphism, and literacy, newly arisen in the generations leading up to Plato.

To this end, I propose in this thesis to bring together the disparate strands of scholarship, both on Platonic mathematics proper, and on Orphism and literacy. I shall present an historical framework through which, if I am correct, we may more *deeply*, more *faithfully*, and more *fruitfully*, interpret the role of mathematics within the philosophy of Plato.

An initial concern to the reader, in approaching Plato within his own cultural, historical, and religious setting, rather than in terms of the perennial issues of philosophy, is that this might suggest that Plato has little relevance to contemporary philosophical investigations.

Such a concern, however, is entirely misplaced. It is analogous to gazing at an example of great architecture, such as the cathedral of Notre Dame, and remarking that it is only a contingent product of a bygone age, and therefore has nothing important to say to us today.¹⁰ The inadmissible nature of such an attitude should be obvious to us on at least two fronts. Firstly, the cathedral of Notre Dame represents such a commanding achievement, that we may be greatly benefited by admiring and studying it in its own right. Secondly, we simply cannot adequately understand contemporary architecture if we are ignorant of such formative monuments as Notre Dame.

¹⁰ I owe this *Notre Dame* analogy to Dr. Paul Studtmann, who suggested it to me in the course of our discussions concerning this thesis.

Similarly, to appreciate Plato's philosophy in its own context is a valuable end in itself. But further to this, Plato's philosophy speaks so eloquently, from such a privileged original standpoint at the outset of western philosophy, that we are to some extent quite unable to understand the issues of contemporary philosophy, unless we properly understand the foundational and pioneering influence of Plato.

I contend that we may, in fact, better understand Plato if we view him not as having been dropped down from an unchanging heaven to voice a timeless, ahistorical, philosophical message, but rather as firmly rooted in his Greek context, yet able for all of that to have made an exemplary and original intellectual contribution to western philosophy. By recognising him thus as an historically situated but inspiring figure, we may more deeply appreciate his real significance for western thought.

Just as with any historical figure, Plato must be understood in light of his own age. Yet within this domain, Plato originally and creatively seized the contingent cultural and religious forces of his day, and refashioned them, by transforming them into a rationalistic philosophical system. By so doing, he laid the foundation for a significant historical transition, fostering the growth of western rationalism.

In Part One of this thesis, then, the reader is asked to enter into a journey through the advent of literacy, and the advent of Orphism. The details there unravelled are intended to enable the reader to understand what it would mean to be an *Orphic philosopher*, particularly with respect to the formative role played by mathematics in this regard. In Part Two of this thesis, I apply the details of Part One to Plato's own philosophy, firstly at the macrocosmic level of the cosmos itself, and secondly at microcosmic level of the soul. In so doing, I construct a framework by which, I suggest, we should interpret Plato, namely, that of a literacy-inspired Orphic philosopher.

Thus the central purpose of the present thesis is to explain how the role of mathematics within Plato's philosophy is grounded in the cultural revolutions of ancient Greece, revolutions that were both cognitive and religious in nature.

In appreciating this, I also hope that the reader recognises that *theoretical thought* does not function as a monolithic cultural norm, constant for all peoples, times, and places. Instead, much that touches upon what we even mean by a *theoretical* disposition

arose out of the nexus of cultural forces, and worldview pioneers, firmly located within classical Greece. Only then did it evolve out into the history of western civilisation, as a new cultural form.

This latter proposal will no doubt appear controversial to many. That this is so has actually provided impetus to my placing of Plato within his own cultural and religious setting. Over against a common philosophical tendency to take the possibility of philosophy for granted, I insist that philosophy arose out of a contingent cultural matrix. Understanding the nature of philosophy, and in particular understanding Plato, means placing them both firmly within this nexus. I maintain that only by firstly understanding how Plato transformed the contingent features of his own culture, can we then proceed to grasp some truly defining features of our own overall cultural situation today, including all those that are necessary for the possibility of philosophy itself.

In this thesis, I enter into the scholarship of that first task, namely, understanding Plato within his own cultural setting. This will inevitably require me to focus upon details that may seem far removed from our contemporary concerns, or indeed the perennial concerns of philosophy. However, it is hoped that by attending to these historical features, we may better appreciate the role of mathematics within Plato's philosophy in its own right.

1.2 Summary of Content

The argument of this thesis, in the ensuing chapters, is constructed along the following lines:

PART ONE: LITERACY, AND THE RISE OF THE ORPHIC PHILOSOPHER

In the First Part of the thesis I concentrate primarily upon the advent of literacy and Orphism. These, I believe, form the necessary background to the advent of philosophy, the advent of mathematics as a theoretical discipline, and the context in which Plato's treatment of mathematics must be located.

Chapter 2: The Advent of Literacy

In this chapter, I examine the shift from an oral-mythical to a literate-philosophical way of life. Myth is the distinctive story that provides direction and cohesion to an oral culture. The culture functions as a collective whole by participating in the myth, through the practice of mimesis. The focus is upon the concrete, actors making actions, or the ebb and flow of practical life.

A cognitive shift was engendered in ancient Greece through the introduction of alphabetic literacy. The art of memory, a mainstay within an oral culture, was replaced by ever more varied and ramified uses of literacy. The role of myth within the culture became redundant. Cognition was instead directed away from the concrete *actors making actions* of the myths, toward the abstract, systematic, and timeless categories of rational theory. Truth was divorced from actors, and invested instead in propositions. To this extent, it no longer carried the personal connotations of trustworthiness and faithfulness. Instead, the very *idea*, or rather the involving *ideal*, of *literal truth* was born. This ideal essentially functioned as a metaphysical connection between language and reality. A theoretical attitude of thought, or the way of philosophy, resulted from this cultural shift.

The Presocratic philosophers provide linguistic examples of this shift in cognition from oral-mythical to literate-philosophical. They pioneered a new philosophical way of life. Plato himself must be understood as having championed this new philosophical cultural form.

Chapter 3: The Advent of Orphism

In this chapter, I focus upon the religious shift engendered by Orphism. I argue that Orphism synthesised the older Apollonian (Olympic) and Dionysian religious impulses in ancient Greece. Importantly, through the advent of Orphism, a dualistic anthropology arose in the popular Greek mindset. The individual self was newly understood as a soul entombed in a body. This contrasts with the older Homeric anthropology, which understood humans as essentially holistic beings.

The Orphics likewise transformed the idea of immortality. Traditionally, immortality had meant that the name, and fame, of a hero lived on in the community

memory. The hero was immortalised in the songs of the bard, or through the honours conferred upon him by the polis. The Orphics, however, connected the idea of immortality to their idea of the soul. It was the soul, as an individual essence, which was immortal. All souls originated from the Divine. Through some act of injustice, each soul was sentenced to a cycle of reincarnation, transmigrating to a new body when the old one died. This cycle could be broken, however, by entering into the Orphic purification rites, and living the Orphic way of life. If this was successful, then at the body's death the soul could be finally liberated to return back to its original home — the Divine.

Chapter 4: The Orphic Philosopher

In this chapter I examine how Orphic doctrine was philosophically transformed in the Presocratic philosophers and especially in Plato. Pythagoreanism, in particular, was closely connected to the religious mystery of Orphism, and essentially expressed Orphism as a philosophical system.

Music (*mousikê*), the art of the singing bard, functioned as a crucial element within Orphism. Within Pythagoreanism this became theoretically expressed as a system of harmony and mathematics. The philosopher-bard now sang with the voice of the logos (*reason*), using as his instrument the mathematical harmony (*ratio*) of the universe.

In the philosophy of Plato, we discover the Orphic synthesis of Apollo and Dionysus transformed into the philosophical synthesis of Being and Becoming, or Changelessness and Change. The Orphic anthropological shift of human beings as immortal divine souls entombed in mortal bodies, was transformed into the immortal *rational* soul (*Being*) entombed in the mortal *irrational* body (*Becoming*).

For Plato, philosophy was understood as the religious quest to free the soul from its tainted condition in the body, and to reunify it with the Divine reality (*Being*) behind experience.

Plato championed and perfected in his own unique way the Orphic-Pythagorean ideal.

Chapter 5: Mathematics in the Making

In this chapter, I investigate the *mathematical* shift in ancient Greece from concrete counting and measuring to an abstract theoretical science of deductive geometry. I compare pre-philosophical Egyptian and Babylonian mathematics with philosophical Greek mathematics.

Pre-philosophical cultures relied upon a concrete, non-abstract, understanding of the arts of counting and measuring. These were integrated and woven into the fabric of their society. They did not function as a separate theoretical science, with a proper abstract domain of their own. This is in stark contrast to the shape that mathematics took in classical Greece. Here were realised, for the first time in western history, the conditions for the possibility of a theoretical science of mathematics. This science took the form of an axiomatic deductive geometry, and was exemplified in the *Elements* of Euclid.

The development of such a deductive geometry resulted from the cultural shifts occurring within classical Greece, namely, the shift from oral-mythical to literate-philosophical ways of life discussed in Chapter Two, and the Orphic-philosophical religious shift discussed in Chapters Three and Four. This also provided a foundation for the Platonic cosmogony, with its reliance upon geometrical construction, discussed in Chapter Six.

PART TWO: PLATO AS ORPHIC MATHEMATICIAN

Here I concentrate primarily upon Plato himself. I seek to portray how we must interpret the role that mathematics plays in his philosophy as epitomising the effects of literacy and Orphism. Part Two is divided into three chapters. Chapters Six and Seven naturally progress from the ontological macrocosm of the cosmos, to the epistemological microcosm of the soul. Chapter Eight presents an epilogue, containing a final statement concerning myth in Plato, as well as the concluding comments to the thesis.

Chapter 6: The Mathematical World of Plato

In this chapter I examine how at the macrocosmic level mathematics is, for Plato, the medium through which the world of Being is imaged into the world of Becoming. Through mathematics a synthesis is obtained between Being and Becoming.

The Platonic cosmology can best be understood to express a grand philosophically transformed Orphic theogony. The Divine Being, pure Reason, emanates out into the Chaos, and brings about an ordered Becoming. Through the rational generations of the Divine (*i.e. a theogony*), the cosmos is born. But the Divine Reason achieves this order through the use of mathematical principles and forms, number ratio and geometrical structuring.

The focus of this chapter is to analyse the dialogue *Timaeus*. I argue that Plato had in mind a distinctive Orphic theogony as the background to this dialogue. This theogony he then developed, and transformed, upon the basis of mathematics. By so doing, Plato aimed to synthesise Being and Becoming, inspired by the Orphic religious synthesis of Apollo and Dionysus.

Chapter 7: Mathematical Katharsis

In this chapter, I examine the microcosmic concomitant of Chapter Six, namely, how Plato incorporates, and transforms, the Orphic mysteries with regard to the soul. At the macrocosmic level, mathematics bridges the gap for the cosmos. It enables Being to be imaged into Becoming, and so bring it into a semblance of order. Likewise, at the microcosmic level mathematics bridges the epistemological gap for individual souls, between Being and Becoming.

The practice of mathematics, for Plato, must be understood in light of the Orphic philosopher's religious quest to obtain *katharsis* (purification). This amounts to the epistemological need to purge the soul of all reliance upon sense-experience (Becoming), and to unify the rational soul with the world of Being, the unchanging Reality behind experience. Mathematics functions as the medium that bridges this epistemological gap, and directs the soul from Becoming to Being. Mathematics is pursued as a *theoretical* enterprise by the rational soul.

I analyse key texts in the *Phaedo*, *Symposium*, and *Republic*, in order to substantiate this proposal.

Chapter 8: Epilogue

This final chapter presents an afterword reflecting upon some possible reasons for Plato's use of Orphic myth, as a means of philosophical expression within his written dialogues.

This concludes the thesis, in which I have argued an historical and textual case for the way in which both literacy and Orphism exerted a pivotal influence upon the role of mathematics within the philosophy of Plato.

Part One:
Literacy, and the
Rise of the
Orphic Philosopher

Part One: Literacy, and the Rise of the Orphic Philosopher

Chapter Two:

The Advent of Literacy

He was specially interested in a collection of rolls, seemingly of skin, covered with characters, which were clearly books; but he gathered that books were few in Malacandra.

‘It is better to remember,’ said the sorns.

When Ransom asked if valuable secrets might not thus be lost, they replied that Oyarsa always remembered them and would bring them to light if he thought fit.

‘The hrossa used to have many books of poetry,’ they added. ‘But now they have fewer. They say that the writing of books destroys poetry.’

— C.S. Lewis, *Out of the Silent Planet*

In this chapter, I examine the shift from an oral-mythical to a literate-philosophical way of life. Myth is the distinctive story that provides direction and cohesion to an oral culture. The culture functions as a collective whole by participating in the myth, through the practice of mimesis. The focus is upon the concrete, actors making actions, or the ebb and flow of practical life.

A cognitive shift was engendered in ancient Greece through the introduction of alphabetic literacy. The art of memory, a mainstay within an oral culture, was replaced by ever more varied and ramified uses of literacy. The role of myth within the culture became redundant. Cognition was instead directed away from the concrete *actors making actions* of the myths, toward the abstract, systematic, and timeless categories of rational theory. Truth was divorced from actors, and invested instead in propositions. To this extent, it no longer carried the personal connotations of trustworthiness and faithfulness. Instead, the very *idea*, or rather the involving *ideal*, of *literal truth* was born. This ideal essentially functioned as a metaphysical connection between language and reality. A theoretical attitude of thought, or the way of philosophy, resulted from this cultural shift.

The Presocratic philosophers provide linguistic examples of this shift in cognition from oral-mythical to literate-philosophical. They pioneered a new philosophical way of life. Plato himself must be understood as having championed this new philosophical cultural form.

2.1 Overview: From Orality to Literacy

To investigate the cultural and historical background to Plato, and in particular the role that mathematics played in Plato's philosophy, one must of course look at the advent of *philosophy* itself.

According to the standard historiography, philosophy originated in Greece, in the 6th c. BC. Traditionally Thales of Miletus (*fl.* c. 585 BC) is accorded the honour of having been the first philosopher.¹¹ The path was prepared for the giants of Greek philosophy, namely Plato and Aristotle, by Thales and the other early Presocratic philosophers. A contrast may be drawn between this new philosophical movement and the earlier Greek poets such as Homer (*fl.* c. 800 BC) and Hesiod (*fl.* c. 735 BC).

This standard historiography largely leaves out of account what I take to be one of the key elements in the shift from Homer to Plato. This is the question of literacy. In the space of a very few centuries Greece moved from a culture that was primarily oral to one into which the technology of writing had been extensively assimilated.

Although an art of writing existed in the Mycenaean era (pre-1250 BC), it was lost to the Greek mainland during their Dark Ages (1250 – 875 BC) when the Greek lands suffered the Doric invasions (c. 1100 – 1000 BC).¹² Writing was re-introduced into Greece through adapted models of the Phoenician scripts (c. 750 – 700 BC). The Greeks commandeered the phonetic aspects of these predominantly syllabic scripts and thereby for the first time in history invented a completely *alphabetic* form of writing. In this way they helped create a form of writing that was as flexible in its expressive powers as the entire spoken language, and yet at the same time singularly easy to learn.

By contrast with what was to come, the poems of Homer (*fl.* c. 800 BC) represent a stage of predominant orality within Greek culture. The early Greek poets (such as Homer) composed their epics with great creativity. Through the success of their oral

¹¹ See, for example, Cohen, *et al.* *Readings in Ancient Greek Philosophy*. Specifically the Introduction section, pp. 1-7.

¹² It should be noted, however, that this early Mycenaean *Linear B* script, was used primarily for the compiling of inventories. It was not until the later classical Greek script, that we find extensive use of writing in the literary arts.

compositional style and the arts of memory, the entirety of these works were able to be memorised and recited, not only by the poets themselves, but by later professional rhapsodes, all without the use of writing.¹³ Attendant upon the shift from orality to literacy in Greece, was a movement to orient oneself away from pictorial, concrete, poetic, and mythical ways of life, and instead embrace a predominantly literal, abstract, prosaic, and rationalistic disposition.

This radical cultural shift unfurled itself in a particularly emblematic way with respect to mathematics. Ancient Egyptian and Babylonian mathematics involved the practical weaving of *counting and measuring* into the fabric of ancient culture, often attended by particularised examples. By orienting themselves towards a literate-philosophical disposition, however, the Greeks essentially invented mathematics as a *theoretical* discipline. By their use of geometrical abstraction, and their programmatic insistence on the pursuit of rational demonstration or proof, the Greeks established these endeavours as the stock and trade of all future mathematicians. This will be further discussed in Chapter Five.

It will undoubtedly seem controversial to propose that abstract *theoretical thought* is not a common feature of all human cultures throughout time, but arose uniquely in the ancient Greek situation. It would appear equally controversial to contend, as I have, that literacy played so formative a role in the advent of philosophy, that before alphabetic writing was adopted there was no philosophy at all. My aim in this chapter, therefore, is to provide good evidence first as to why we might at least consider these two contentions, and second as to why they are indeed the case.

As such, I shall here endeavour to argue the following: that theoretical thought became possible, for the first time, due to the advent of literacy; and that Plato must be accredited as the champion of this new *rationalistic* way of life.

¹³ The creative genius of the poet in composing a poem, should of course be distinguished from the art of the professional rhapsode, whose ability lay in his commitment to being able to *recite* (in full) the poets' great works. For example, consider the figure of the rhapsode Ion from Plato's dialogue *Ion*. Nevertheless, the work both of poet and of rhapsode within the Greek culture must be considered in relation to wider arts of memory.

2.2 Myth-making, Mnemonics, and Mimesis

2.2.1 Myth

Myth plays an important integral role within an oral culture. In the endeavour to define *myth*, however, one must approach in a sensitive and careful manner. In particular, one must not understand myth as a literally *false* or *unreasoned* story, which primitive people express because they do not have the tools with which to construct a *true* and *rational* account. The possibility of a *literal* truth or falsity only makes sense from within a culture already dominated by literacy (a point further elucidated in section 2.4.4). If this category obtains at all within an oral culture it does so only by a kind of projection by us, of our understanding of truth onto some of the ways that people in oral societies appraise what is thought or said. By making such a projection it might be that we can make better sense of some things; but of much we will make worse rather than better sense, especially the ways of evaluating thoughts or sayings core to the mythological memory arts. It is more appropriate to think that peoples whose cultures are oral are not literally minded. The category of *literal truth* is not so much of fleeting and partial significance within their cultural form, as it is misconceived and irrelevant.

A considerable range of possible definitions have been bestowed upon the term ‘myth’, dependent upon *who* is using it and to what *purpose* it is employed.¹⁴ Among these, G.B. Caird offers an inviting approach, which I consider, with qualifications, to helpfully indicate what the term ‘myth’ entails,

It is performative, a ‘living reality’ which commits its adherents to a pattern of life. It is expressive and evocative, appealing to the imagination through a sense of the impressive, the enchanting, the sublime and the mysterious. It is par excellence the language of social cohesion. Above all it is referential in the same fashion as metaphor is referential. It tells the story about the past, but only in order to say something about the present and the future... the user of myth says to his audience, ‘Here is a lens which has helped me to understand the world you and I live in; look through it yourselves and see what I have seen.’¹⁵

¹⁴ Helpful summaries of the various approaches to mythology, are found in, Caird, G.B. *The Language and Imagery of the Bible*. See especially, Ch.13 “The Language of Myth”, pp. 219-242; and in, Kirk, G.S. *The Nature of Greek Myths*. See especially Part One “The Nature of Myths”, pp. 13-91.

¹⁵ Caird, G.B. *The Language and Imagery of the Bible*, p. 224.

At least two important qualifications need to be made in response to Caird. Analysing the use of language within an oral culture in terms of the *metaphorical* provokes an implicit contrast with the *literal*. This effectively reads back in, anachronistically, linguistic distinctions that become meaningful only within a literate culture, as I shall later explain. Further to this, Caird seems to suggest a cognitive distance from the myth-teller and the audience, i.e. an *I – them* distinction. This, I maintain, would not occur within an oral culture. Rather, I propose that *myth* functions in collective terms, such as, ‘here is the lens by which *we* understand the world *we* live in; all those who form part of *our* society live by looking through this lens *together with us*’. Of course, even here, we must not presume that an oral culture would be in a position to make such a self-reflective statement.

Werner Jaeger notes that the Greek term μῦθοι (*muthoi*) originally was a ‘harmless designation for any speech or language’¹⁶. This word became transformed in its meaning through the philosophers (especially the Milesians), so that almost universally by the time of Thucydides (c. 460 – 399 BC) it came to connote ‘the mythical in the sense of the fabulous and unauthenticated, as contrasted with any verifiable truth or reality’. This clearly expresses the shift from an oral to a literate mindset.

I suggest that myth be understood in the following manner. It forms the fabric in which an oral culture is sewn. It is something that is very distinctive about pre-literate oral cultures. The myth functions as the story that directs, coheres, and identifies the tribe or culture that embraces it. It is spoken in terms of concrete, pictorial images, involving actors and their actions — whether these are gods or heroes.

By embracing the myth, members of the society identify themselves with the whole. So much so, that any given members of an oral culture would not consider themselves *as individuals*, rather they would consider themselves *as nodes of the tribal whole*. Their identity would not be so much in terms of an *individual* personality, as in terms of a *collective* personality. The tribe thinks, acts, and behaves, remarkably much as an organic whole, and to that extent not as a collection of isolated individuals.

¹⁶ Jaeger, *The Theology of the Early Greek Philosophers*, p. 19.

The myth therefore acts as the glue that binds such an oral community together. It will consist of a story, and for the members of that society to be able to function successfully and productively, they must live in terms of that story.

2.2.2 Mnemonics

Myth is constructed within a poetic form. That is to say, it is composed *rhythmically*, in verse. By committing it to memory each member of the culture is able to participate in the myth. The myth becomes a living part of who they are.

The *art of memory* is very important in this regard. As each member of the society must be able to own the myth, then it needs to be composed in such a way as to aid memorisation. It also needs thickly to incorporate internal checks against elision or distortion, to reduce the risk of an incorrect retelling.

By the use of a regular, rhythmic, poetic style (whether that be a meter, assonance, alliteration, or other poetic devices), the myth can take on a definite form. This lessens the risk of error in transmission, for the poetic style would be lost if accidentally altered. It also means that embellishing or purposefully altering the myth needs to be carefully thought through and composed in a deliberate manner.

For many early cultures the arts of music accompanied the art of myth telling. The bard or rhapsode would often sing or recite the tale with the accompaniment of the lyre, harp, or other musical instrument. So much so, that even the very melody used could be committed to memory, and reproduced when intoning the story.¹⁷

The fusing together of the arts of story-telling, music, and dance, was termed '*mousikê*'. This name derives from the goddess *Muses* who gave their name to the craft, and were also called, 'the daughters of *Remembrance*'. This characterisation of the Muses solidifies the idea that it is through the arts of *mousikê* that the *memory* abilities of an oral

¹⁷ Eric Havelock states this point well, '...what we call "poetry" is therefore an invention of immemorial antiquity designed for the functional purpose of a continuing record in oral cultures. Such cultures normally follow the practice of reinforcing the rhythms of verbal meter by wedding them to the rhythms of dance, of musical instruments, and of melody. A poem is more memorizable than a paragraph of prose; a song is more memorizable than a poem.' In, Havelock, *The Literate Revolution in Greece and its Cultural Consequences*, p. 186.

culture are achieved. Through this memorisation via *mousikê*, the myths can be passed down, and give guidance, to the future generations.

These myths were not just *read*, but actually *sung* according to set melodic structures and accompanied by instrumentation.¹⁸ This would give even stronger support to the person who is to memorise the stories, in that not only does the story work within a very definite *poetic* structure, but also within a definite *musical* structure. Memorisation would be enhanced, and errors in recitation would be reduced to a minimum, or be removed altogether.

One only has to consider the figure of Orpheus, the immortalised singer and poet, to understand the importance that the role of *mousikê* had in Greek legend. This importance carried through into Greek philosophy, with the transformation of *mousikê* into harmony (as discussed in Chapter Four), and in particular into the philosophy of Plato (as discussed in Part Two, Chapters Six and Seven).

2.2.3 Mimesis

Not only does the member of an oral culture participate in a myth through the arts of memory, they participate in an even stronger way by identifying themselves with the characters of the story as it is being told.

In ancient Greece, this took the form of what is termed ‘mimesis’, or *imitation*. It was the task of the poet in reciting the myths to enable his audience to identify itself with the characters in the story, both emotionally and sympathetically. In this way, the cultural story of the society was *relived*, *imitated*, rather than *analysed* or *rationally understood*, as is usually the case today in literate cultures, where drama and stories are *studied*.

Through repetition of the very bodily mnemonic techniques of the rhythmic use of words, song, and dance, a pleasurable state of euphoria was induced. This could even be described as a semi-hypnotic state, as the listeners became part of the re-enactment of the myth.

¹⁸ For an example of this see, Haik-Ventoura, S. *The Music of the Bible Revealed: The Deciphering of a Millenary Notation*. Haik-Ventoura argues that the Hebrews of the 2nd temple period *sang* (or chanted) the texts of the Torah rather than merely reading them, and that these melodic structures are preserved in the *te’amim* of the medieval Masoritic tradition, as cantillation markings.

I propose that it was through this *imitative* participation in the societal myth, that the villagers came to learn the way of life of that society. The villagers learned how to live their corporate life acceptably, in terms of their society, through the means of the re-enacted story. The story, or myth, became so much a part of who they were, that in their daily life and regular routine they acted in ways that were in concord with that foundational directive myth.¹⁹ But this life-directing manner was not necessarily deliberative, or self-conscious. A villager did not necessarily think to himself, or herself, ‘now, what sort of action should I perform here — what do the myths say?...’ Rather, by mimesis of the re-telling of the myths, the villager’s life was so fashioned that by learning the sorts of acceptable behaviour in the myth, he readily and automatically repeated these actions in his daily life. Not even under a close scrutiny as to *why* the villager acted in such and such a way would a reflective response in terms of the myth be necessarily forthcoming.

The whole-bodied identification with the myth, in giving direction to a villager’s life and the life of the society, did not require what we might describe as *intellectual reflection* upon the nature of their response to the myth. Rather the story or myth of the tribe could be re-enacted in their own life and communal experience, without ever self-consciously reflecting on the fact that this was the very thing happening. It was so ingrained as a way of life, that there was no alternative for it to be set in contrast to, and therefore no need and no impetus for critical self-reflection on their activities.²⁰

¹⁹ For more detailed analysis on the role of myth, and participation in the myth, within the life of a culture, see, Ong, Walter J. *Orality and Literacy*, especially, Ch.3 “Some Psychodynamics of Orality”, pp. 31-77, Ch.6 “Oral memory, the Story Line and Characterization”, pp. 139-155. Also, Havelock, *Preface to Plato*, especially Ch.2 “Mimesis”, pp. 20-35, Ch.3 “Poetry as Preserved Communication”, pp. 36-60, Ch.4 “The Homeric Encyclopedia”, pp. 61-86, Ch.9 “The Psychology of the Poetic Performance”, pp. 145-164. See also, Thiselton, Anthony C. *New Horizons in Hermeneutics*, especially Ch.13:2, pp. 479-486, Ch.15:3, pp. 566-575.

²⁰ On this point Havelock states, “The poetic performance if it were to mobilise all these psychic resources of memorisation had itself to be a continual re-enactment of the tribal folkways, laws and procedures, and the listener had to become engaged in this re-enactment to the point of total emotional involvement. In short, the artist identified with his story and the audience identified with the artist. This was the imperative demand made upon both of them if the process was to work. You did not learn your ethics and politics, skills and directives, by having them presented to you as a corpus for silent study, reflection and absorption. You were not asked to grasp their principles through rational analysis. You were not invited to so much as think of them. Instead you submitted to the paideutic spell. You allowed yourself to become “musical” [i.e. story, music, and dance] in the functional sense of the Greek term.’ In, Havelock, *Preface to Plato*, p. 159. To this one could add that in such a pre-literate culture you were not invited to learn *ethics* or *politics* at all.

It is this mimesis or imitation, then, that enables the members of an oral culture to identify and embrace the myth or story for themselves, at the deep level of communal-personality.²¹

2.3 The Advent and Adoption of the Alphabet

From c. 1100 – 700 BC, Greece was a non-literate society. Culturally, it had the markings of sophistication.²² Yet this did *not* depend upon literacy as a necessary skill.

The use of exo-somatic symbols to convey the meaning of the spoken word had predated this period of non-literacy in Greece. The Mycenaean period (pre-1100 BC) had its famous Linear B script, finally deciphered in 1952.²³ Also, many other cultures, such as the Semitic peoples, had their various written scripts as a way of recording words.

But all these pre-Greek scripts share in common one important difference from the writing system developed in classical Greece. Namely, they all can be described as a ‘syllabary’, in distinction to the Greek system, which can for the first time be called an ‘alphabet’. An *alphabetic* writing system appears for the first time in the archaic Greek period.²⁴

These intellectual disciplines only occur, and make sense, in terms of an abstract theoretical disposition, one that was not possible within an oral culture.

²¹ Havelock, *Preface to Plato*, pp. 159-160, ‘The minstrel recited the tradition; and the audience listened, repeated, and recalled and so absorbed it. But the minstrel recited effectively only as he re-enacted the doings and sayings of heroes and made them his own, a process which can be described in reverse as making himself “resemble” them in endless succession. He sank his personality into the performance. His audience in turn would remember only as they entered effectively and sympathetically into what he was saying and this in turn meant that they became his servants and submitted to his spell.’

²² This was also a time of the grand formation of the Greek *polis* or city-state. Iron working, and smelting, were cultivated. Temple and other building constructions anticipated in wood, what was later preserved in stone during the archaic age (c. 625 – 480 BC). It was a time of great cultural establishment and development. See, Havelock, *Origins of Western Literacy*, pp. 4-6. See also, Forrest, George, “Greece: The History of the Archaic Period”, in, Boardman, *et al.* (eds.) *The Oxford History of the Classical World*, pp. 19-49.

²³ Parker, Robert, “Greek Religion”, in, Boardman, *et al.* (eds.), *The Oxford History of the Classical World*, pp. 258-259.

²⁴ It should be noted that there is some debate in the literature concerning the exact designation of the term ‘alphabet’ and when it first arose. In this thesis I essentially follow the school of I.J. Gelb, who distinguishes between an *alphabet* and a *syllabary*, in that an alphabet is a complete system of consonants and vowels, first developed by the ancient Greeks. Previous systems of writing can be therefore designated as *syllabic*. This distinction, of course, should not be read simplistically, and there is a close continuum between the Greek achievement and the achievement of other surrounding cultures. For details on the debate in this area see, Goody, J. *The Interface Between the Written and the Oral*, pp. 40-48. Debate also

The difference between our modern *alphabet*, and the ancient *syllabaries* is that with an alphabet linguistic sounds are broken into atomic components, so that each letter identifies one *phoneme*. Inevitably, this procedure is not necessarily exact but it nevertheless functions as the principle of construction of an alphabet. A *syllabary*, on the other hand, differs from this in that each letter seeks to identify a *syllable*, a group of phonemes, a vowel sound started or stopped by consonants. It focuses upon each pronounceable block of sound. However, in this case, the sheer number of pronounceable syllables runs into the hundreds. If economy is sought by reducing the letters of the syllabary down to a manageable size, then each letter takes on an ambiguity where it can represent any number of possible sounds. The reader himself, or herself, must decide which is the correct sound, dependent upon his prior knowledge of the text, and context.

An alphabet, however, removes this ambiguity by delineating not pronounceable blocks of sound, but the more basic building bricks that go to make up each pronounceable block or syllable.

The Greek alphabet arose as a simplified adaptation of the Phoenician writing system.²⁵ In this regard the Phoenician script prepared the way for the transformation of the systems of exo-somatic letter symbols into an alphabet. Phoenician, chief of the Northwest Semitic scripts, although still being a syllabary, nevertheless organised the syllables into common groupings, each of which was indexed by the consonantal sound that began the syllable.²⁶

exists regarding the exact date of the development of the Greek alphabet. Some, such as Narveh, suggest an earlier date of c. 1100 BC. Yet there is no archaeological evidence to support this claim, and the argument rests only upon epigraphical considerations. I here follow the predominant archaeological evidence for an 8th c. BC development. For further details on this point see, Goody, *op. cit.*, pp. 46-47.

²⁵ For the history and methodology behind this adaptation of the Phoenician syllabary by the Greeks, see, Havelock, *Prologue to Greek Literacy*, pp. 5-13; "The Pre-Greek Syllabaries" and "The Greek Alphabet", in *The Literate Revolution in Greece*, pp. 60-88; *Origins of Western Literacy*, Ch.2-3, pp. 22-50. See also, Goody and Watt, "The Consequences of Literacy", in Kintgen *et al.* (eds.), *Perspectives on Literacy*, pp. 3-27. The Greek fashioning of the alphabet was not so much a piece of creative genius, but rather a serendipitous opportunism. Not possessing a writing system of their own, the Greek communities borrowed from the syllabary of the Phoenicians, and further simplified it for their own purposes, specifically adopting those aspects more easily learned.

²⁶ Havelock explains this point, 'Phoenician grasps the principle that "ba be bi bo bu" constitutes a set of "b" syllables. Previous syllabaries would have used five unrelated signs for these five sounds. Phoenician uses one, the consonantal "index" of the set. In a sense therefore Phoenician prepares the way for the recognition of the consonant as a theoretically separate element of speech, and the system is able to reduce the number of signs used to something over twenty... But its obvious drawbacks are: (i) it is less flexible

The Greek script newly embodied what it meant to reproduce a language in written form. Now, for the first time, an alphabetic system was in use and development. This meant that, also for the first time in western history, *literature*, properly understood, became possible.

The reason for this is that in a pre-alphabetic syllabary, the extent to which the text can be used is primarily as a record of an oral speech. Given the ambiguities present in a syllabary, the reader needs to have a familiarity with the context and intent of the writing in order to be able to render successfully the potentially ambiguous symbols with the correct syllabic sounds. As such, it is common for such syllabaries to contain idiomatic and formulaic constructions. An attempt to be daring in the range of expressible content will only result in an increased ambiguity in decipherability. The result of this will be the inevitable reduction in written vocabulary, and reduction of semantic arrangement, so that ambiguity is lessened. This however means that the rich range of the *spoken* vocabulary will not be translated into a workable *written* vocabulary.

It is highly likely that the richness of an orally recited story was simply not reproduced *word for word* in such a pre-alphabetic syllabary. Rather, a more *standardised* and linguistically *simple* version would have been better suited to be recorded. Into this a living and creative oral tradition could inject a more expansive freshness in the spoken, or sung, retelling.

This potential ambiguity in a syllabary meant that the reader of the text not only had to be trained in the art of writing, but also had to be trained in the art of being able to make the correct syllable renderings — i.e. he had to be able to interpret the text. The task of the *scribe* then was not just limited to reading and writing, but also involved a thorough working knowledge of the interpretative traditions engendered by the syllabic ambiguities. As such, a scribe had to be an expert trained in the craft of reading, writing, and textual interpretation.²⁷

than the Greek system, being designed to index only syllables beginning with a consonant; (ii) it is much more ambiguous, since it requires the reader to infer whether vocalisation has to be supplied and if so how much.' In, Havelock, *Origins of Western Literacy*, pp. 31-32.

²⁷ Such expert scribes were still in use in the 1st c. Palestine, as interpreters of Torah written in Hebrew, and Aramaic, syllabaries. The New Testament gospels, to cite just one instance, refers to these scribal experts.

It would be anachronistic then, to describe these pre-alphabetic syllabary texts as *literature*, when by *literature* we mean a *literate* craft in which the written words and symbols are manipulated into a rich semantic tapestry. This is only possible, in any meaningful way, once an alphabetic craft is in place. Only when the full richness and variety of the spoken word can be readily translated into a written format would poets be encouraged to experiment with this medium. This they would do, initially, by a simple transposition of the oral to the written, with the exactitude newly possible with an alphabet. Later, they could experiment in composition that takes its impetus and genius from what was written, rather than from what was spoken, i.e. that which was composed *as written*, and designed to be *read from*, rather than merely *stored in* a written form but composed and received *orally*.

It is, then, with the advent of the alphabetic craft into ancient Greece, that we have for the first time in western history, a very rich recorded *literature*. The obvious explanation for this is that the Greeks now had at their disposal, in distinction from the syllabaries of the surrounding cultures, a written alphabetic technology that allowed for the full range of vocabulary and semantic diversity within oral speech to be recorded in written form. The alphabetic midwife had now ensured the birth of the literature baby.

2.4 The Ascent to Abstraction via the Alphabet

2.4.1 Redundancy of the Scribe — Literacy in Education

With the introduction and adoption of literacy, and in particular the newly possible *alphabetic* literacy, into ancient Greece, there came a dramatic and thoroughgoing radical cultural shift.

Regarding literacy itself, with the adoption of an alphabetic rather than syllabic system, the role of the scribe or expert interpreter of the syllabaries becomes redundant. Texts are no longer potentially ambiguous. If a person learns the art of alphabetic writing

Later the Jewish medieval Masoretic scribes would establish a system of *vowel pointers* to help codify this scribal tradition of syllabic textual interpretation.

then they can simply read a text quite without having to have an extensive working knowledge of context and interpretative traditions.

This opening up of the access to texts may also be seen in relation to the education of the Greek population. It is most likely that the first fashioners of the alphabet, and those who primarily made use of it, were the lower classes — the craftsmen, artisans, and traders. The children of these artisans would have laboured with their parents in their shop or work place, prior to the age of adolescence. It is here that they would have learned the art of alphabetic writing, which was then under development.²⁸ The upper classes of Greek society, however, would have still maintained an oral education, even up to the beginnings of the classical age.²⁹

It took some time then, for the art of alphabetic writing to become assimilated into the life of the prominent citizens, or upper class, of Greek society. It was not until c. 390 BC that we have definite evidence of its use in the formal education of the upper classes.³⁰

²⁸ See Havelock, *The Literate Revolution*, p. 187.

²⁹ Havelock, *The Literate Revolution*, p. 187, '[The upper class education] consisted in the memorization of poetry, the improvisation of verse, the oral delivery of a prose rhetoric based on verse principles, the performance on instruments, string or wood, and singing and dancing. For a long time after the invention of the alphabet, letters were not included, and when they were first introduced, they were treated as ancillary to memorization and recitation. There is ample evidence that in the sixth and fifth centuries B.C. this curriculum was identified in Athens by the term *mousikê*, as previously defined, and no hard evidence that in this period it covered reading. Organized instruction in reading at the primary level, that is, before the age of ten, cannot have been introduced into the Athenian schools much earlier than about 430 B.C. It is described in Plato's *Protagoras*, written in the early part of the next century, as by then standard practice, as it indeed had become when Plato grew up.'

³⁰ Plato's own remarks may be used as a fixed historical reference-point in which to date the use of the alphabet in education. Plato wrote the dialogues *Parmenides* and *Charmides* most likely c. 390 BC. In these dialogues we have the very specific, even if incidental, references to a cultural practice of education in literacy — the reading and writing of texts.

Later on when they send the children to school, their instructions to the masters lay much more emphasis on good behaviour than on letters or music. The teachers take good care of this, and when boys have learned their letters and are ready to understand the written word as formerly the spoken, they set the works of good poets before them on their desks to read and make them learn them by heart...

All this is done by those best able to do it — that is by the wealthy — and it is their sons who start their education at the earliest age and continue it the longest. When they have finished with teachers, the state compels them to learn the laws and use them as a pattern for their life, lest left to themselves they should drift aimlessly. You know how, when children are not yet good at writing, the writing master traces outlines with the pencil before giving them the slate, and makes them follow the lines as a guide in their own writing...

But which is better when you are at the writing master's, to write the same letters quickly or quietly?

The result then, of the alphabetic script, was that those who, by the time of Plato, could read and write included both lower and upper classes. This primary education in letters was sufficient to equip the Greeks with the necessary literate skills, without, and aside from, having to progress through any *scribal* school.

2.4.2 Alphabetic Attack upon the Art of Memory

Once a society has in its grasp a technology able to exo-somatically record, with exactitude, the intricacy of oral speech, then this technology threatens to overthrow the previous oral-memory systems.

We must bear in mind, from the above sections, that in an oral culture the myths or stories that gave direction and cohesion to that culture were, by necessity, poetic, mnemonic, in order to aid the art of memory, recitation, and transmission. If into this nexus a new technology is introduced, one that promises to be able to store accurately what previously had to be memorised, then this very *art of memory* in the oral tradition is subverted.

If it is no longer necessary to *memorise* the myth or story in order for it to be retained, then the concomitant necessity for mnemonic devices is also lost. No longer is there a need for rhythmic syntax. No longer is there a need for poetry. Prose can effectively undertake a linguistic coup.³¹ The need for the art of memory is lost, as one can successfully refer, and rely upon, an exo-somatic alphabetically recorded text in order to recover the message.

Quickly.

And to read quickly or slowly?

Quickly again. (Plato, *Protagoras*, 325e, 326c-e; *Charmides*, 159c)

To this we might also add the account from Democritus of writing being taught as a part of the standard education syllabus,

If children are allowed not to work, they cannot learn letters or music or gymnastic, nor that which above all things embraces virtue, (namely) reverence. (Democritus, 68 B 179 DK)

Dating this fragment presents a more difficult task. The last possible date would be c. 370 BC, the death of Democritus. However, it may have been written much earlier than this, and even possibly predate the textual evidence from Plato.

³¹ Havelock, *Origins of Western Literacy*, p. 49, 'The important and influential statement in any culture is the one that is preserved. Under conditions of non-literacy in Greece, and of the craft literacy in pre-Greek cultures, the conditions for preservation were mnemonic, and this involved the use of verbal and musical rhythm, for any statement that was to be remembered and repeated. The alphabet, making available a visualized record which was complete, in place of an acoustic one, abolished the need for memorization and hence for rhythm.'

Plato himself was well aware, it seems, of the ramifications of this cultural shift. He recounts the story of the god Theuth (who dwelt in the region of Naucratis in Egypt), who invented the art of writing. Theuth presents his invention to king Thamus (or Ammon). Thamus proceeds to offer comments upon its good and bad points — which predominantly focus upon the potential loss of *arts of memory* within a society.³²

2.4.3 Abstraction

Once a *poetic* concrete *story* is no longer needed in order to give direction and cohesion to a community, the role of prosaic writing can effectively take over.

This development in turn lays the groundwork for one of the most significant intellectual revolutions in the history of western culture, namely, the possibility of *abstract theoretical thought*.

An oral myth is always told in terms of the time-bound actions by time-bound actors. It deals with particular characters and their actions as bringing about new situations. It is in this sense that it is imaginative — a story in the primary sense of that term. It is concerned with the complex unfolding of *Becoming*, of the change within the experience of life.³³

A purely oral culture has stories, and stories arranged in terms of the activities of actors. This is the language of Homer. It is not until the arrival of alphabetic literacy that we start to observe a linguistic shift.

Hesiod, for example, now privy to the early technologies of literacy, does not attempt a carbon copy Homeric drama, but rather regroups the story of the myths into non-storied categories — collections of the generations of families. This, of course, is still very much a concrete approach. A dynasty or family is a very real tangible thing. But

³² Plato, *Phaedrus*, 274d – 275b. This passage will be discussed in more detail in section 2.7 of this chapter.

³³ Havelock, *Preface to Plato*, p. 173, '[t]he content of the poetic record can thus be viewed on the one hand as an endless series of actions, on the other as an equally endless series of births and deaths which when applied metaphorically to phenomena become "things happening" or "events"... But it can fairly be generalised that the saga... is essentially the record of an event-series, of things-happening, never of a system of relations or of causes or of categories and topics.'

it is a significant novelty to restructure the myth in accordance with a non-storied category.³⁴

It is this quality of temporal boundedness that really marks out the story of an oral culture. It is the pressing need for memorisation and poetic construction that gives the story its temporally bounded qualities. This syntactic mould of temporal boundedness shapes the structure of the way of life and mindset of an oral culture. They eat, drink, and breathe, in terms of the concrete, in terms of actors making actions. And all this in terms of persons living and acting in some *time* and in some *place*, with change and development *over time*.³⁵

All the elements needed to be maintained by the tribal memory were embedded in terms of a story. *Timeless truths* about a *science* of boat handling, for example, are not to be found. Rather we find the necessary technical skills about boat handling told in terms of a story, for example, about a king giving orders concerning the nautical transportation of a girl back to a shrine.³⁶ The details of the story here embody only what was needed for a *general education*. The poet was no *expert* in matters of boat-handling, but rather acted as the teacher of the community, the one who encapsulated what everyone would be expected to know. The finer and more complicated details of activities, such as boat handling, would be part of an established *technê* passed down orally from generation to generation among those who took up the nautical arts as their vocation.

Once you have a system of literacy in place there is simply no *need* to retain the poetry of oral forms. With prosaic forms come the tools to rearrange material according to new mindsets, according to structures that anticipate the a-historic.

³⁴ Havelock, *Preface to Plato*, pp. 179-180, 'The activity of Hesiod, the first extant cataloguer, therefore heralds the first beginnings of a later style of composition which craft literacy had rendered possible. Only with the growing help of the written word would catalogue material begin to be separated out from narrative contexts and appear in a more harsh, informative, and less memorisable dress.'

³⁵ Havelock, *Preface to Plato*, p. 180, '... the data or the items without exception have to be stated as events in time. They are all time-conditioned. None of them can be cast into a syntax which shall be simply true for all situations and so timeless; each and all have to be worded in the language of the specific doing or the specific happening.'

³⁶ See *Iliad*, 141ff, 308ff, 432ff, 480ff. See also Havelock's discussion of this, in, Havelock, *Preface to Plato*, pp. 81-86, 175. Havelock notes as another example, that within an oral setting it is just not possible to make a universal timeless utterance such as, 'human beings are responsible for the consequences of their own acts', Havelock, *Preface to Plato*, p. 181.

In short, the possibility for a new way of thinking has arisen. *Abstraction* and *abstract thought* is born into the matrix of Greek civilisation. The skill, and desire, to transform narrative into the terms of ahistorical categories grounded the advent of philosophical abstraction.

Etymologically to *abstract* is to draw away, to detach.³⁷ And this is exactly what takes place in the art of literary abstraction. From an oral poetic narrative, material is drawn away, or detached, from the becoming, from the time-bound unfolding of the story. Next, this material is rearranged in terms of timeless categories, categories that may be prosaically recorded not in the memory, which would be a difficult task, but through the means of an exo-somatic, alphabetic medium of writing. The exact nuances of such re-formation of material are completely amenable to the new literary art.

This technology opens up new ways of viewing material. Once we have a timeless category under view, then the possibility of exhausting that category is open. For example, it is conceivably possible to compose the definitive treatise about *boat handling*, detailing a complete and sufficient collation of all the words that are necessary in order adequately to canvas the *subject* (now treated as a non-narrative category).

Not only this, but with such an array of ahistorical categories, the concept of a *systematic* approach is also given birth. An historical narrative follows the *contingent* time-bound actions of experience. A system, or σύστημα (*sustema*)³⁸, is a *putting together* of these various categories into a new unified whole. Unified, that is, upon the basis of ahistoric categories.

This is a radical and subversive way of approaching one's experience. *Radical* in that the possibility of very definite abstract thought had no precedent in archaic Greece. *Subversive*, in that in the hands of the philosophers this mindset was to dominate the Greek culture to such an extent that it would forge itself into a very distinctive,

³⁷ In English usage this term 'abstract' dates back to the 14th c. It is derived from the Latin 'abstractus', which is the past participle of 'abstrahere' which means 'to draw away'. It is a composite of 'ab(s)' = 'away', and 'trahere' = 'draw'. See entries in *An Etymological Dictionary of Modern English*, Barnhart *Dictionary of Etymology*, and the *Oxford English Dictionary*. See also the *Online Etymology Dictionary*, as a web-based etymological source: www.etymonline.com

³⁸ σύστημα (*sustema*), is defined by Liddell and Scott, as 'that which is put together, a composite whole: a composition: a college, assembly'. Liddell and Scott, *Lexicon* (abr.), p. 683.

philosophical, Greek *worldview*.³⁹ This new philosophical worldview overthrew the older oral-mythical ways of life.⁴⁰

2.4.4 The Transformation of *Truth* Toward Timelessness

Not only did an abstract way of thinking arise with the advent of alphabetic literacy, but a fundamentally new concept of *truth* and *knowledge* was also engendered.

In an oral culture, the idea of *truth* is able to be connected intimately with persons. Essentially the concept of truth is that of *trustworthiness*, a primarily *personal* quality. It is due to the strong communal relationships that obtain between the members of the myth making culture, that a feeling of mutual trust and integration exists between these members. This is, of course, given to them by the almost uniformly shared form-of-life that they have, expressed not only in their common myth-making, but in shared ways of acting, and shared symbols, such as artefacts.

With this strong communal identity, each member of the culture is seen as part of the organic whole. This would mean that each member of the culture is to be trusted, and respected, relative to the role that they play within the community. Specifically, tribal leaders, the poet-musician myth-tellers, or the priest-guardian (representative head) of the tribe, would be understood as in some relevant sense completely *trustworthy* in terms of their oral pronouncements. What it meant to belong to the community, was that these oracular judgements were directive, and inherently trusted. *Because* the *person* speaking was trustworthy, they held a position of trust and respect within that community. As such,

³⁹ In fact, for the first time in Greek history what can be called a *worldview* arises. That is to say, a *systematic* understanding of all, gathering the multitude of experience together under an abstract whole, became part of the collective way of life of the Greek people. This increased all the more, as philosophical endeavour became both more sophisticated and widespread, permeating almost every aspect of Greek culture.

⁴⁰ Havelock, *Preface to Plato*, p. 220, 'Theoretically this world [i.e. the new world of knowledge engendered by abstract thought] can be regarded as systematic and exhaustive. All the abstracted essences somehow gear in with each other in a relationship which is no longer that of narrative but of logic. They all fall into a total ground plan of the universe. It is theoretically possible to exhaust the area of the known; at least the mind of a Supreme Knower might manage this. For the known, in order to be known, must be definite; it cannot go on forever as the story could. It must be a system and a system to be such must be closed. Hence in its over-all aspect the world of knowledge itself furnishes the supreme example of a total integration, within which a thousand minor integrations disclose themselves in ascending and descending hierarchies. The abstracted object per se is a one, but so is the world of the known taken as a whole.'

an isolated utterance or statement could be held to be *true*, if by 'true' we were to mean *trustworthy*.

But even this would not necessarily be how an oral culture would act on the matter. Rather, it is because the *person* who speaks is a *trustworthy person*, not only as a fellow member of one's tribe but also as one recognised as having authority and respect, that each of their verbal pronouncements is acted upon as being trustworthy. One can act in complete accordance with the pronouncement, and by so doing enact out in concrete fashion that the *person* is to be *trusted*.

The spoken utterance of someone was not divorced from that very person. There would have been a tight holistic unity of person and pronouncement, which meant that to deny one, would be to deny both. And denial, if it were even thinkable, would mean to cut oneself off from one's tribe, and in a very real sense, cut oneself off from one's own life, as life was bound up with the tribe.

However, once writing becomes a more dominant technology within a society, then a shift away from this is able to occur. In particular with an alphabetic literacy, writing is not merely a means for the preservation of poetic form, as with much ancient syllabic craft-literacy. Rather, the written word takes on a *life of its own*. Once an oracular statement can be recorded in an exo-somatic medium, then it is able to have an *exo-personal existence*. It is now possible to divorce persons from what they say. A *proposition* can now be understood as associated with the alphabetic etchings on a piece of papyrus, not with a person who uttered something. It is no longer living, in this sense, but takes upon itself a static nature. It becomes fixed in its existence.

Thus is engendered a new understanding of what *truth* means, in key respects profoundly different from that of an oral culture. It is now possible for there to be a *science of how sentences work*. The question can for the first time be raised in a theoretical vein, 'what does it mean for this exo-somatic, exo-personal, proposition to be *true*?' In conjunction with the advent of Greek philosophy, people are for the first time deeply exercised by this theoretical question. According to their new perspective, truth takes the form of a kind of metaphysical *correspondence* between, on the one hand, the

various semantic elements of the proposition, and, on the other hand, the various items in the cosmos to which they *refer*.

Plato himself, spends much time unfolding his own particular understanding of the *truth* of a proposition in his dialogues, an understanding that relies integrally upon his entire philosophical schema, and not surprisingly for this reason an understanding that would be completely unintelligible from the perspective of an oral culture.

We have a shift then, in the meaning of truth, from the trustworthiness of persons, to the level of success of metaphysical correlatively between sentence and cosmos. With this shift we have the birth of the concept of *literal truth*. A *literal truth* is one that, suggested by the very words of the phrase itself, relies upon the *art of literacy*. A *literal truth* is one where there is the correct successful metaphysical correlation between sentence and cosmos. Which correlation is *correct*, and which is not, is dependent upon which philosophical system is being assumed.

Now there can also be a contrast with *metaphorical truth*. This is where there is an *incorrect* metaphysical correlation, but where this incorrectness is semantically deliberate, and can be explained by the transformation of the sentence into a literally correct one. The contrast between literal and metaphorical is for this reason only intelligible within a literate culture that has the philosophical category of *literal truth* under its belt.⁴¹

To suggest as I have just done that the concept of literal truth figures only in literate-philosophical societies is a radical thesis, but in advancing it I need at the same time to be clear that it is not so radical as it may seem. Over against the view that the surfacing, for the first time, of the concept of literal truth represents a completely discontinuous change in cultural form, I should say that this change is scarcely noticeable with respect to much that people say and think. If in an oral setting various pronouncements are lauded as true, and in a literate-philosophical setting various pronouncements are lauded as true, I expect that there is considerable correlation or continuity between the meaning of 'true' in most of those cases. For example an answer

⁴¹ This is the fuller explanation, therefore, of why earlier I had to amend the otherwise helpful definition of *myth* offered by Caird.

to the question ‘was my sister here this morning?’ would count in either kind of society as either true or false just in accordance with whether or not my sister was here this morning. So the difference between the two kinds of societies with regard to the concept of truth is scarcely detectable with respect to pronouncements as mundane as ‘my sister was here this morning’. However, I do insist that a *theory* of truth, or a *theoretical understanding* of what it means for a proposition to be true, became possible for the first time only within a literate-philosophical culture. With respect to less-than-mundane pronouncements, for example, the elements of an important myth in the case of an oral society, or the key tenets of a mathematical or cosmological theory in the case of a literate-philosophical society, it will mean something very different in the one or the other society to laud the relevant pronouncement as true. Why this matters is that with respect to the general understanding of ‘is true’, the mundane cases connect with the less-than-mundane ones seamlessly.

In a myth-making, art-of-memory based society, lauding a particular pronouncement is a matter of saying that it is something worthwhile to say or to think. But in the context of such a society the worth of the pronouncement may well have a lot to do with the fact that it is memorable, or that it helps render a package of pronouncements memorable. Probably memorability is not the significant concern if the pronouncement in question merely answers the question whether my sister was here this morning. But it will be a chief concern if the pronouncement conveys a key part of a myth. By contrast, in literate-philosophical society, memorability is no longer an important issue. If a pronouncement is worth lauding, that is because it is literally true. This will be the case if the pronouncement answers the question whether my sister was here this morning. But it will equally be the case if the pronouncement concerns a fine point of mathematics, or a speculative surmise in the sphere of cosmology.

The point I am attempting to make might be challenged with the following example.⁴² *Iliad*, 19:95-133, contains the story of the delusion of Zeus. Expecting the birth of Herakles from Alkmene, Zeus pronounces that,

⁴² I am indebted to my thesis examiner Professor Dirk Baltzly for pointing out this passage from the *Iliad*.

This day Eileithya of women's child-pains shall bring forth a man to the light who, among the men sprung of the generation of my blood, shall be lord over all those dwelling about him.⁴³

Hera sees this as an opportunity to beguile and deceive Zeus, so she goads him into taking an oath to confirm his declaration.⁴⁴ This is a good example, as noted above, of the truth of a statement being intimately tied to the trustworthiness of the speaker. The veracity of Zeus is tied up with the *truthfulness* (in the sense of trustworthiness) of what he has proclaimed.

There is a sense here then, in which Zeus' statement can be discovered to be true or false. His words contain a certain definite meaning, understood by his community, such that those who heard his pronouncement may judge for themselves whether Zeus has spoken truthfully — i.e. whether Zeus will be true to his word.

Hera then proceeds to alter the circumstances without Zeus' knowledge. She holds back the expected birth of Herakles, and instead precipitates the premature birth of Eurystheus, son of Sthenelos, descendant of Perseus. Thus, completely contrary to Zeus' intention, Eurystheus and not Herakles is the only child who may fulfil Zeus' pronouncement, and Zeus is held accountable to ensure that Eurystheus is ruler, if Zeus is to keep true to his word.

In her study on lying and deception within Homeric poetry, Pratt has uncovered a series of principles detailing when deception was in fact condoned and admired within the Homeric mindset.⁴⁵ Of these, the case of Zeus' deception above exemplifies at least two of these principles. Firstly, taking advantage of one's competitors is good, and a greater licence is accorded to the gods for such behaviour.⁴⁶ Hera here exhibits her prowess in being able to deceive such a powerful god as Zeus, and not by her own speech, but in fact by the speech of Zeus himself. Secondly, the ability to make an

⁴³ *Iliad*, 19:103-105. Lattimore translation.

⁴⁴ *Iliad*, 19:106-113, 'Then in guileful intention the lady Hera said to him: "You will be a liar, not put fulfilment on what you have spoken. Come, then, lord of Olympos, and swear before me a strong oath ..." So Hera spoke. And Zeus was entirely unaware of her falsehood, but swore a great oath...' Lattimore translation.

⁴⁵ Pratt, Louise H. *Lying and Poetry from Homer to Pindar*, pp. 56-63.

⁴⁶ Pratt, Louise H. *Lying and Poetry from Homer to Pindar*, pp. 57-59.

enigmatic pronouncement is deemed praiseworthy.⁴⁷ In this case, however, there is an ironic twist in that Zeus considers his statement to contain one simple intention — namely the lordship of Herakles. Yet Hera is cunningly able to turn Zeus' declaration into an ambiguous proposition, in that by altering the circumstances, she forces Zeus to appoint Eurystheus instead of Herakles to the lordship.

The hearers of the poem would have recognised then, that contrary to Zeus' expectation Eurystheus was the only candidate who could make the statement *true* concerning the declaration that 'this day women's child-pains shall bring forth a man to the light who, among the men sprung of the generation of my blood...'. In that sense, both an oral and a literate culture share a common understanding of how a statement can be legitimately brought about.

But what is really at issue in this passage from the *Iliad*, in terms of dramatic purpose, is the idea of truth as *trustworthiness*, as detailed above. The audience wants to know, will it be true that 'this day shall bring forth a man to the light who, among the men sprung of the generation of my blood, *shall be lord over all those dwelling about him.*' In other words, will Zeus be *true* to his word, i.e. will he *prove himself trustworthy*, in declaring that *whoever* fulfils his pronouncement of 'this day among the men sprung of the generation of my blood', shall be the ruler.

What we do not have, in this example, nor in the Homeric corpus as a whole, is a *theoretical* reflection upon the nature of truth. It is this new ability to transform, and understand the idea of truth in a *theoretical* way, that distinguishes the literate-philosophical mindset from the oral-mythical.

In contrast, a good example of a *theoretical* notion of truth, and its new potential for abstract transformation within the literate-philosophical mindset, is Plato's treatment of *true* versus *false* judgement in the dialogue *Theaetetus*.⁴⁸ There he renders a series of possible accounts for the difference between the *truth* and *falsity* of a judgement, which take their impetus from his own *theoretical* psychology, ontology, and epistemology.

⁴⁷ Pratt, Louise H. *Lying and Poetry from Homer to Pindar*, p. 62.

⁴⁸ Plato, *Theaetetus*, 187b-210d.

Concomitant with this shift in the meaning of *truth*, is the shift in the meaning of *knowledge*. *Knowledge*, just as with *truth* (trustworthiness), in an oral culture, takes a typically *personal* meaning. To *know* someone, is to have a close and intimate relationship with them. It is *not* the ability to expound a lengthy scientific definition of them, but rather to be in personal communion with them. This is preserved today, in English, where ‘to know one’s spouse’ functions as a euphemism for ‘to have intimate and sexual relations with one’s spouse’.

By extension, to *know* what someone says is *true*, is to have some degree of personal intimacy with the person who spoke, and to see them as trustworthy to such an extent, that you act in relation to what they say with complete confidence and trust. You *hear* what they have to say, and because of the intimate personal bond between you both, you then *act* upon that statement, in such a way as to *affirm its trustworthiness*.

The dominant image for knowing in an oral culture is therefore, not surprisingly, associated with the aural. ‘I hear what you say’ — has the overtones of ‘I acknowledge your saying, and shall act in accordance with it’, or, in the more popular phrase ‘to hear is to obey’.

Once the shift to literacy has taken effect, however, this dominant image moves from the aural to the visual. As truth and knowledge are no longer strongly connected to persons and their sayings (audible things), but to exo-personal written propositions (visible things), then the image for knowledge is no longer connected to the aural but to the visual. ‘I see’ — has overtones of ‘I acknowledge the truth of this proposition’. The concept of a *theory* which developed in Greek philosophical thought, and is now a common epistemological term, has its etymological roots in the Greek word θεωρία — *theôria*, which means a spectacle, or something that is seen.⁴⁹

This shift also transforms the basis for knowledge no longer as a *communal* activity, but as something the *individual* must achieve as an individual. Rather than working within the community praxis for knowledge in an oral culture, the person is invited to construct knowledge for himself, or herself, even apart from this community.

⁴⁹ θεωρία (*theôria*), is defined by Liddell and Scott, as , ‘a looking at, viewing, beholding, observing’. In, Liddell and Scott, *Lexicon* (abr.), p. 317.

To *see* cognitively, is to *see for oneself*. This, for the philosophers, became *to see the rational cohesion of the object of thought* for oneself. This naturally anticipates a shift in anthropology, or a new understanding of what it means to be human, from an integral member of a tribe to a rational individual soul. This will be examined in Chapters Three and Four.

2.4.5 The Theoretical Attitude of Thought

What arose in ancient Greece then, for the first time in its history, and as the foundation for western culture, was what may be described as a *theoretical attitude of thought*. This is central to the philosophical enterprise.

A theoretical attitude of thought, is one in which one's experience and knowledge, now understood in a philosophical sense, is to be systematised according to abstract categories of thought. In other words, one reflects on one's experience, and explains or interprets this, upon the basis of abstract categories of thought.

Theoretical thought, then, is another way of describing the process of abstraction employed in the cognition of a philosophical culture. It should be contrasted with a concrete attitude of thought, which is indicative of an oral-mythical culture. Concrete thought has an understanding of experience in terms of narrative, story, and concrete time-bound objects, images, and symbols.

It is not the case, however, that every culture or time-period, that has had theoretical thought as central to its way of life, universally accepts the *same* abstract categories. For example, at the concrete level, all cultures can experience holding a rock and watching it fall to the ground. A culture given to a theoretical attitude of thought will seek to interpret, or offer an explanation of this experience, in terms of abstract categories, i.e. offer a theoretical explanation. But here, the form that this theoretical explanation takes will depend upon the larger worldview presuppositions that the culture holds. Historically, for example, Aristotelian theory would interpret the event in terms of a teleological abstraction, where the abstractly construed elements that compose the rock tend toward their telos, or natural place in the cosmos. A Newtonian theory, by contrast, would interpret the event in terms of the abstract concept of *gravity*, which would involve

an analysis in terms of a mathematical description of the events. Here, the mathematical aspect, in turn, has been abstracted from the situation and systematised in terms of the abstract explanatory concept of *gravity*. Whether the Aristotelian schema is commensurable with the Newtonian is of course a debatable question. What is of relevance here, is that both the Aristotelian and Newtonian schemas rely upon the foundation of a *theoretical* attitude of thought.

It is this *theoretical* attitude to one's understanding of experience that is concomitant with the understanding of truth and knowledge, which are central to a philosophical culture.

2.5 Making of a New Morality

The shift toward a new understanding of truth and knowledge, with a disposition towards a theoretical attitude of thought, must in turn be correlated with the advent of what can, for the first time, be called *ethics*.

In an oral culture, which does not maintain a theoretical disposition, there can be no *science* of ethics as we might understand that today. In what sense, however, would the oral culture maintain an understanding of *good* or *bad*, in relation to their behaviour? Building on the previous discussion in the above sections, I would like to suggest that the behaviour of any particular member of an oral culture would be understood in terms of a collective personality, and *faithfulness* to the *group praxis*.

That is to say, the tribe as a collective whole, would prize faithfulness to family, and tribe, as the basis for acceptable behaviour. This, of course, would not necessarily take any universal form among oral peoples, but rather be quite dependent upon the founding myths, symbols, and praxis of that culture.

In particular, for the Greek culture, traditional poetry, such as the Homeric poems, would have acted as foundational myths. However, the citizens of the polis would not have based their praxis upon these myths in the sense of replicating exact situations. The Homeric myths were, by the time of the archaic and classical era, reflective of a then bygone age. Not only this, but they were also reflective of an era fraught by heroes,

monsters, and mythical creatures. But one need not have encountered a Cyclops in the classical age in order for the Homeric myths to have supplied a relevant moral paradigm.

Rather, the Homeric myths functioned by instilling values and ideals within the Greek communities. They were the primary source material for *aretê* — excellence and virtue. By learning how a hero acted in the Homeric situation, and by imbibing the nature of the hero into one's own praxis, one was able to almost intuitively act in any given moral situation, *as the Homeric hero would have acted if he were in that new situation*.

The recognition of the dependence of ethical norms upon the shared values, myths, and stories of a culture — in light of the variation in cultural praxeis encountered by the Greeks in the classical period — may have led to the development of sophistic relativism. For example, Herodotus notes the graphic contrast in praxis regarding the treatment of deceased fathers between two different ancient cultures.⁵⁰ Coming to realise this cultural difference would lead many sophists to be critical of such praxeis. This ability for theoretical reflection on the nature of *nomos* (law or convention) was newly possible as a result of the theoretical philosophical disposition arisen in Greece at that time.

For a member of an oral-mythical society, to act unfaithfully to the tradition (expressed in myth, symbol, and praxis), would be to place oneself outside of the community, and hence to set oneself against the community. Furthermore, as one's life was identified and defined in terms of the community, then in effect it would be to set oneself against one's very life.

Such a community was not understood as a conglomeration of individuals. Each member of society would have their place and role to play in a societal hierarchy, of families, tribes, and so forth. An act of treason or unfaithfulness against the society may

⁵⁰ Herodotus, *Histories*, III "Thalia", 38. Rawlinson translation. Herodotus states, "That people have this feeling about their laws may be seen by very many proofs: among others, by the following. Darius, after he had got the kingdom, called into his presence certain Greeks who were at hand, and asked – "What he should pay them to eat the bodies of their fathers when they died?" To which they answered, that there was no sum that would tempt them to do such a thing. He then sent for certain Indians, of the race called Callatians, men who eat their fathers, and asked them, while the Greeks stood by, and knew by the help of an interpreter all that was said – "What he should give them to burn the bodies of their fathers at their decease?" The Indians exclaimed aloud, and bade him forbear such language. Such is men's wont herein; and Pindar was right, in my judgement, when he said, "Law [Custom, i.e. *nomos*] is the king o'er all." Rawlinson has translated *nomos* as 'law' in the final sentence. A better rendering given the context, however, is 'custom'.

very well mean not only cutting oneself off from that society, but also cutting off those over whom one has responsibility, such as a household, group, guild, or tribe.

The primary disposition involved in such a setting is that of shame. Where 'shame' is understood to mean an act of treason, or unfaithfulness against those to whom one is socially bound. It is to act in a way that sets oneself against the community personality. At the intra-social level it could mean to set oneself against a fellow member of the tribe. It was to negate the person involved, and that meant to negate the tribe itself, which gave identity to its members. Shame then, was a community oriented, and community focused, negative disposition.

In terms of knowledge and truth, as previously delineated within an oral-mythical setting, to act shamefully meant to act untrustworthily (*un-truth-fully*). It was to set oneself against that intimate trustful communal bond (i.e. *knowledge*), by treasonous and traitorous dispositions.

The linguistic images also are extended easily in this direction of community faithfulness. I noted above that *to know* is often pictured as *to hear*. But further to this, the image of *to hear* also connotes *to act in a manner faithful to*. This is still present today in many uses of our English word 'hear'. 'Do you hear what I am saying?' said by a flustered parent, can well have the connotation 'Will you act in a way that is faithful to what I am saying?' Or in medieval Europe when the town crier announced 'Hear ye, hear ye ...', he is expecting not only the *attention* of the townsfolk, but also their *obedience* to the king's edict. To *hear* then, is to *know*, which is to *act faithfully*, trustworthily.

When these concepts of truth and knowledge, are transformed in a literate-philosophical culture, then a new platform for understanding negative behaviour arises. As truth and knowledge are abstracted from persons, and given a new metaphysical setting (i.e. the correlation between the various semantic elements of the proposition and the cosmos), in a similar manner the concept of negative behaviour is abstracted from an understanding of communal personality. With the advent of an abstract or theoretical attitude of thought, the idea of abstract moral or legal principles is now possible.

This must be correlated with the new understanding of what it means to be human, discussed in more detail in Chapters Three and Four. To anticipate this discussion here,

along with the oral – literate shift was a shift in understanding of what it means to be human, from a holistic *community* orientation, to a dualistic body-soul *individual* orientation.

Conceiving what it meant to be human in this strongly individualistic manner helped lead to the concept of a *new* morality, or better, the possibility of what we, in the western tradition, could for the first time fully recognise as *ethics*. Here the *individual soul* is correlated to a *non-personal* ethical standard or telos. The philosophical quest was to account *theoretically* for the *good* to which the *individual soul* should strive.

In the philosophical tradition, the concept of *aretê* is linguistically transformed. *Aretê* (ἀρετή) essentially means an excellence or goodness. For Homer, it essentially connotes manliness, military prowess, and valour. By the time the Greek city-states were being firmly established, *aretê* came to have what we would now call *political* connotations, namely, the ability or excellence to function *politically* well as a fully active citizen of the polis. Through the tradition of Socrates, Plato, and Aristotle, it came to denote what we would describe as distinctly moral or ethical concerns, laying the basis for our primarily *ethical* understanding of *virtue* today.⁵¹

This shift in meaning of the term ‘*aretê*’ embodies the shift in culture — from a communal military or political excellence, to an *individual ethical* excellence.

Rather than a disposition of shame accompanying this new cultural form, there is a disposition of *guilt*. Guilt, in distinction from shame, is an emotion within the individual that their soul has acted in opposition to the good, however the *good* may be theoretically conceived. Guilt is an emotion that depends upon conceiving of oneself as an individual moral agent. Thus someone can feel guilt regardless of whether their actions are known by others and regardless of whether the community at large approves or disapproves of their actions. They evaluate themselves primarily in light of their own *individual* actions with regards to what they consider the *good*.

⁵¹ For a fuller discussion on the semantic shift of the term ‘*aretê*’ in ancient Greece, see, Guthrie, *A History of Greek Philosophy*. Vol. III, “The Fifth-Century Enlightenment”, Ch.10, “Can Virtue be Taught?”, pp. 250-260.

This moral weighing or accounting is a process that relies upon the ability to abstract. Namely, to take a given situation and abstract from it an ethical aspect, which then can be set in either positive or negative correlation to a timeless ideal of the good.

2.6 The Pre-Socratic Philosophers as Precursors to the Platonic Paradigm

2.6.1 The Presocratics as Philosophic Pioneers

Having outlined the general shape of what the transition from oral-mythical to literate-philosophical looked like in ancient Greece, it is necessary to document this shift in the actual characters of the cultural drama.

If Homer stands as a bastion of an oral-mythical way of life, and if Plato stands as the champion of the new cultural form of philosophy, then we would naturally expect there to be precursors to Plato. We would expect transitional figures. We would expect, in other words, some thinkers who were moving toward the newly emerging philosophical disposition, yet still struggling to shed the shell of the oral-mythical way of life.

This expectation is confirmed by the so-called *Presocratic* philosophers. It is these figures who were the first to forge a new philosophical disposition. They are the forerunners, the prophets crying in the wilderness, announcing to their Greek audience a message to turn from the ways of Homer and embrace a new *philosophical* way of life.

It is, however, still within the context of the Homeric way of life that the Presocratics speak. Their forms, and structures of speech and thought, demonstrate a partial working within the Homeric framework, only to be pushing out of it, and beyond it, into the new philosophical framework which was to develop through their pioneering.

One of the chief difficulties in handling the Presocratic material is that it comes down to us only in an incomplete form. To speculate about what each particular Presocratic philosopher might or might not be saying, given the, at best, scant evidence, has proven itself to be a Herculean task, resulting more often than not in unresolved

debates. Even though this is so, I believe it is possible to glimpse the movement from oral-mythical to literate-philosophical in these Presocratic works.

Significantly, the indications are that the earlier Presocratics were primarily composing orally, and still maintaining the poetic forms of speech, for a *listening*, not *reading*, audience.

2.6.2 The Milesians (*fl. c. 585 – 545 BC*)

The early Milesian philosophers, namely, Thales (*fl. c. 585 BC*), Anaximander (*c. 612 – 545 BC*), and Anaximenes (*fl. c. 545 BC*), are not easy for us to interpret philosophically. We have few if any authentic fragments which refer to their compositions without paraphrase or re-rendering.

Regarding Thales, it is generally doubted that he left any authentic recorded works.⁵² Simplicius states that the only recorded work he left was a ‘Nautical Star-guide’,⁵³ whereas Diogenes Laertius testifies that many consider that he left no works at all — the star-guide being perhaps written instead by Phokos the Samian.⁵⁴ On those occasions where written works are ascribed to Thales, the reports indicate that these were in *verse* form. The Suda report from Hesychius states that Thales wrote about celestial matters in epic verse,⁵⁵ this also being noted by Plutarch, who reports that the star-guide was in verse form.⁵⁶ If Thales was creating written material, then it would seem that this material was still cast in the forms of oral-poetic style.

⁵² See particularly, Kirk, Raven, and Schofield, *The Presocratic Philosophers*, pp. 86-88.

⁵³ Simplicius, *In Aristotelis Physica commentaria*, p. 23,29 Diels. Quoted from, Kirk, Raven, and Schofield, *The Presocratic Philosophers*, p. 86, ‘Thales is traditionally the first to have revealed the investigation of nature to the Greeks; he had many predecessors, as also, Theophrastus thinks, but so far surpassed them as to blot out all who came before him. He is said to have left nothing in the form of writings except the so-called ‘Nautical Star-guide’.’

⁵⁴ Diogenes Laertius, *Lives of Famous Philosophers*, Book I, 23. Quoted from, Kirk, Raven, and Schofield, *The Presocratic Philosophers*, pp. 86-87, ‘And according to some he [i.e. Thales] left no book behind; for the ‘Nautical Star-guide’ ascribed to him is said to be by Phokos the Samian...’.

⁵⁵ Suda (from Hesychius) [11A2 DK]. Quoted from, Kirk, Raven, and Schofield, *The Presocratic Philosophers*, p. 87, ‘... he [i.e. Thales] wrote on celestial matters in epic verse...’.

⁵⁶ See, Plutarch, *de Pythiae Oraculis*, 18, 402e [11B1 DK].

Similarly with Anaximander, a few book titles are ascribed to him, but such testimony must be taken with some reservation.⁵⁷ It is thought that at least one book containing the works of Anaximander must have existed at some point, given the one genuine fragment concerning Anaximander, from Theophrastus (reported by Simplicius). This fragment contains what ostensibly appears as a quote,

The things that are perish into the things out of which they come to be, according to necessity, for they pay the penalty and retribution to each other for their injustice in accordance with the ordering of time, as he [i.e. Anaximander] says in rather poetical language.⁵⁸

It is not certain, however, to what extent Theophrastus was paraphrasing or directly quoting Anaximander.⁵⁹ Nor is it certain whether his source material for Anaximander was itself written by Anaximander, or compiled by a later writer based on oral reports. Even so, the extant Theophrastus report indicates the 'rather poetical language' being employed by Anaximander.

With Anaximenes we also have only one ostensibly authentic fragment, a report from Aetius,

Just as our soul, being air, holds us together and controls us, so do breath and air surround the whole kosmos.⁶⁰

It is debated whether or not this fragment represents a direct quotation from Anaximenes.⁶¹ Most likely it is a later paraphrase. The only account we have concerning his actual linguistic use is a report from Diogenes Laertius, that Anaximenes employed a 'simple and economical Ionic speech'.⁶² This is tauntingly vague, and it would be imprudent to draw too strong a conclusion from this statement.

⁵⁷ See, for example, Kirk, Raven, and Schofield, *The Presocratic Philosophers*, p. 102, 'The book-titles ascribed to Anaximander ... presumably from Hesychius, should be regarded with reserve. It was the custom with Alexandrian writers to supply titles, in the absence of definite evidence, to suit an early thinker's known interests.' The Suda reports (and should be taken with reservation) the following titles by Anaximander, *On Nature*, *Circuit of the Earth*, *On the Fixed Stars*, and a *Celestial Globe*. See, Kirk, Raven, and Schofield, *The Presocratic Philosophers*, p. 100.

⁵⁸ Anaximander, 12B1 + A9 = Simplicius, *Commentary on Aristotle's Physics*, 24.18-21.

⁵⁹ See for example the discussion in McKirahan, *Philosophy before Socrates*, p. 43, and, Kirk, Raven, and Schofield, *The Presocratic Philosophers*, pp. 106-108, 117-122.

⁶⁰ Anaximenes, 13B2 DK = Aetius, I,3,4.

⁶¹ See for example the discussion in, McKirahan, *Philosophy before Socrates*, p. 54, and, Kirk, Raven, and Schofield, *The Presocratic Philosophers*, pp. 158-162.

⁶² See, Diogenes Laertius, *Lives of Famous Philosophers*, Book II, 3.

What can be said, is that from the very scant evidence we have regarding the linguistic activity of these Milesian philosophers, they were at the forefront of the transition to written composition, still composing within an oral-poetic linguistic framework, but now perhaps with an eye to the written recording of this oracular philosophy.

2.6.3 Xenophanes (c. 570 – 475 BC)

Xenophanes' fragments all consists of lines of poetry. He has forty-nine lines of hexameter, sixty-nine elegiac, and one iambus. The fragments attributable to him, clearly identify him as an oral itinerant poet:

Already there are sixty-seven years
Tossing my thought (*phrontis*) throughout the land of Greece...⁶³

It is often assumed that this refers to his exile after Persia took Colophon. But he nevertheless puts himself squarely in the context of a panhellenic poet. What differentiates him from his Homeric counterparts is his description of his compositions as *phrontis* (thought). With this term Xenophanes is setting himself apart from the poets Homer and Hesiod. It is the new way of life called *philosophy* that he is spreading, not the older mythical way of life.

He identifies himself as having a *skill* (*sophia*), no doubt the skill of a poet-orator:

Better than brawn
Of men or horses is my skill.⁶⁴

But his skill is not that of a *Homeric* poet. Xenophanes directly opposes the older Homeric way of life and replaces it with his new philosophic wisdom.

Give us no fights with Titans, no, nor Giants
nor Centaurs — the forgeries of our fathers —
nor civil brawls, in which no advantage is.
But always to be mindful of the gods is good.⁶⁵

The 'forgeries of our fathers' is nothing but the older mythologies of Homer and Hesiod. These two come under direct attack in the way they portray the Divine,

⁶³ Xenophanes, 21 B 8 DK.

⁶⁴ Xenophanes, 21 B 2 DK.

⁶⁵ Xenophanes, 21 B 1.21-24 DK.

Homer and Hesiod have ascribed to the gods all deeds
which among men are a reproach and a disgrace:
thieving, adultery, and deceiving one another.⁶⁶

Xenophanes sees himself as propounding a fundamentally new way of life, and especially a new conception of the Divine,

No man has seen nor will anyone know
the truth about the gods and all the things I speak of...⁶⁷

The 'no man' in question here, is no doubt the Homeric minded common Greek among Xenophanes' contemporaries. It is this mentality that can know nothing of the new philosophic way of life espoused by Xenophanes.

This new philosophic mentality is reaching toward the idea of a timeless abstraction. Xenophanes states,

God [*theos*] is one, greatest among gods and men,
Not at all like mortals in body or thought.

All of him sees, all of him thinks, all of him hears.

He always remains in the same place, moving not at all,
nor is it fitting for him to go to different places at different times.⁶⁸

Here there is a stark contrast to the mythical mindset. In the oral culture of Homer, it is the gods (*theoi*) who are the performers of events, actions, within a time-bound environment. These are the narrative, storied, descriptions and details of mythic culture.

Xenophanes opposes this and speaks of the Divine (*theos*) as being unitary, integrated. Not in the sense of just one thing out of many things of experience, however. Rather *theos* is now thought to be that which encompasses, integrates, and unites experience together. All of *theos* 'sees and thinks and hears'. *Theos* is the abstracted wholeness of experience, integrated together.

The dynamic time-bounded activities of the Homeric *theoi* are denied. *Theos*, for Xenophanes, is not dynamic, it 'remains in the same place, moving not at all', and it is not bound to a certain place and time, 'nor is it fitting for him to go to different places at

⁶⁶ Xenophanes, 21 B 11 DK.

⁶⁷ Xenophanes, 21 B 34 DK.

⁶⁸ Xenophanes, 21 B 23, 24, 26 DK.

different times'. Theos is a timeless abstraction, the matrix out of which all time-bound activities unfold. It is impossible to speak about theos in terms of narrative or mythos.

Once the first step has been taken towards understanding one's environment not in a narrative context but in terms of the abstract unity of all things (*theos*), then it is possible to think about the environment in terms of abstract categories constituting a systematic relation to the one unified environment (*theos*). It is these abstract terms that will eventually form the basis for a philosophical *worldview* — a set of categories in which the unified whole of one's experience is analysed. The Greeks were to establish eventually such abstract categories we now know as, substance, quantity, quality, void, form, matter, body, element, motion, universal, particular, eternal, to name only a few. All these are the abstract aspects of the one abstract and unified whole, the *theos* according to Xenophanes.

2.6.4 Heraclitus (b. c. 540 BC)

Heraclitus, along with Xenophanes, also composed and communicated *orally* as a poet,

This logos holds always but humans always prove unable to understand it, both before *hearing it* and when they have *first heard it*...

[Rebuking some for their unbelief, Heraclitus says,] Knowing neither how *to hear nor how to speak*.

Uncomprehending when *they have heard*, they are like the deaf. The saying describes them: though present they are absent.

Listening not to me but to the logos it is wise to agree that all things are one.⁶⁹

Once again, it is poetry that is breaking the bonds of Homer, and pushing toward a new philosophical mindset. The extant fragments of Heraclitus come to us in the form of the poetic aphorism. They employ the devices of repetition, assonance, antithesis, and symmetry.⁷⁰

⁶⁹ Heraclitus, 22 B 1, 19, 34, 50 DK. Emphases added.

⁷⁰ For elaboration and examples of this, see, Havelock, *The Literate Revolution*, pp. 240-247.

Diogenes Laertius reports that Heraclitus wrote a book, entitled *On Nature*, and dedicated it by placing it in the temple of Artemis.⁷¹ However, criticism is levied at this report, given the rather generic title, and later, Stoic influenced, threefold division of the work. Diels held that Heraclitus wrote no consecutive book, only making aphoristic pronouncements. These are certainly reflected in the style of the fragments we currently possess. Kirk, Raven, and Schofield, suggest that Heraclitus may have composed in oral apophthegms, and in gaining fame as a sage, these aphorisms were then collected together in a book, with a special prologue.⁷²

Just as in the case of Xenophanes, the Homeric-Hesiodic way of life is strongly opposed,

Heraclitus said that Homer deserved to be expelled from the contests and flogged...

Most men's teacher is Hesiod. They are sure he knew most things — a man who could not recognise day and night; for they are one.

Much learning does not teach insight. Otherwise it would have taught Hesiod...

What understanding or intelligence have they? They put their trust in popular bards and take the mob for their teacher, unaware that most people are bad, and few are good.⁷³

Heraclitus propounds the new way of the logos and opposes the mythos. The move is from the narrative-mythical to the abstract-philosophical. With Xenophanes, we saw the redefinition of theos, to embrace the totality of the environment. This is also the case with Heraclitus. An abstract terminology is being developed, and with Heraclitus the abstract idea of a total-encompassing system is prominent. He states,

The cosmos, the same for all, none of the gods nor of humans has made, but it was always and is and shall be; an ever-living fire being kindled in measures and being extinguished in measures.⁷⁴

⁷¹ Diogenes Laertius, *Lives of Famous Philosophers*, Book IX, 5. Quoted from, Kirk, Raven, and Schofield, *The Presocratic Philosophers*, pp. 86-87, 'The book said to be his [i.e. Heraclitus's] is called 'On Nature', from its chief content, and is divided into three discourses: On the Universe, Politics, Theology. He dedicated it and placed it in the temple of Artemis, as some say, having purposely written it rather obscurely so that only those of rank and influence should have access to it, and it should not be easily despised by the populace...'.
⁷² For details see, Kirk, Raven, and Schofield, *The Presocratic Philosophers*, pp. 183-184.
⁷³ Heraclitus, 22 B 42, 57, 40, 104 DK.
⁷⁴ Heraclitus, 22 B 30 DK.

Importantly, the term ‘cosmos’ has here been transformed in meaning. The term comes originally from epic poetry, where the ordered (*cosmos*) array of an army is under an ‘orderer’ (*cosmêtôr*).⁷⁵ But for Heraclitus the term is employed in a new transformed way to mean something *abstract*. It introduces the concept of what we would call a *world-order*, or indeed a *cosmos* in the contemporary sense. The entirety of man’s environment, inclusive of the past, present, and future, just as with Xenophanes’ *theos*, is encompassed together as an abstract system, a whole. This cosmos, can only truly be spoken of in terms of *logos* — a new philosophical vocabulary and grammar. To speak in terms of the *logos*, is to speak not in terms of *mythos* — of the narrative sequence of Homer. Rather it is to speak in terms of *a-historical* categories, the parts that make up the systematic whole of the cosmos,

Wisdom is one thing, to be skilled in true judgement, how all things are steered through all things.

Right thinking is the greatest excellence, and wisdom is to speak the truth and act in accordance with nature, while paying attention to it.

Listening not to me but to the *logos* it is wise to agree that all things are one.

... [O]ut of all things there comes a unity, and out of a unity all things.⁷⁶

Speaking the truth is not to speak in a way that is faithful or trustworthy to the societal group, but rather to align oneself metaphysically with *nature*, with the *cosmos*, with the abstracted systematic world-order.

2.6.5 Parmenides (c. 515 – 445 BC)

It comes as no surprise, in turning to Parmenides, that he also, along with Xenophanes and Heraclitus before him, stands strongly within the oral-poetic tradition of ancient Greece. Along with his Presocratic predecessors he is expounding and promoting a new philosophical way of life that runs counter to that of Homer.

The source material we have concerning Parmenides is itself cast in the form of a hexameter poem in which the goddesses reveal the *way of truth*.

⁷⁵ This point is made by, Havelock, “The Linguistic Task of the Presocratics”, p. 24.

⁷⁶ Heraclitus, 22 B 41, 112, 50, 10 DK.

The mares which carry me as far as my spirit aspired were escorting me, when they brought me and proceeded along the renowned road of the goddess, which brings a knowing mortal to all cities one by one.⁷⁷

The itinerant nature of Parmenides' poetic-philosophical quest is also brought out, as he is taken 'to all cities one by one'.

The poem itself in revealing the *way of truth* is unfolding the nature of the *sayable* — the way language is to function, if it is to be true, in the new philosophical paradigm,

That which is there to be spoken and thought of must be...⁷⁸

The contrast is drawn between the new philosophic *way of truth* embodied in the poem, and *the way* of Parmenides' contemporary culture, under the sway of an Homeric mindset,

This road (for indeed it is far from the beaten path of humans) ...
And the opinions of mortals, in which there is no true reliance...
...but next from the way on which mortals, knowing nothing, two-headed, wander.
For helplessness in their breasts guides their wandering mind. But they are carried on
equally deaf and blind, amazed, hordes without judgement...⁷⁹

With Parmenides the message is very strong that the fundamental problem with Greek culture as it stands is conceptual and linguistic. There are two ways, the poem declares — the *way of truth* which is the way of the thinkable and the sayable, and *the way of mortals* as they are at present. This latter way embodies the old Homeric mindset, and is actually a way that is unthinkable, unlearnable, unknowable, and importantly unsayable,

... the only ways of inquiry there are for thinking:
the one, that it is and that it is not possible for it not to be,
is the path of Persuasion (for it attends upon Truth),
the other, that it is not and that it is necessary for it not to be,
this I point out to you to be a path completely unlearnable,
for neither may you know that which is not (for it is not to be accomplished)
nor may you declare it.⁸⁰

So what is the distinguishing feature about the new way of language and conceptualising, the *way of truth*, in opposition to the older Homeric way? It rests

⁷⁷ Parmenides, 28 B 1 DK.

⁷⁸ Parmenides, 28 B 6 DK.

⁷⁹ Parmenides, 28 B 1, 6 DK.

⁸⁰ Parmenides, 28 B 2 DK.

primarily in the nature of the *sayable* as consisting in abstract, timeless, categories of cognition.

It is the verb *to be* (*einai*) that takes on the important role in Presocratic philosophical language, as denoting that which is timeless, not part of the time-bound narrative of Homeric language. It is an ever present *is*, or more accurately, an *is* that partakes of no time-boundedness.

We have seen this idea already being reached for in Heraclitus,

The cosmos, the same for all, none of the gods nor of humans has made, but *it was always and is and shall be...*⁸¹

Here Heraclitus appears to be stretching, under the limitations of the oral time-bound language he inherited, to the concept of timelessness. He speaks of the cosmos as embracing all of temporal experience, as encompassing all of past, present, and future. Note, the language here is still constrained under the temporal, in that it is a past *time*, present *time*, and future *time*, of which he speaks. Yet it binds all these *times* together under one unified concept — a cosmos. The cosmos, this systematic all-embracing environment for men and gods, transcends both men and gods. It has no origin, such that a man or god brought it into *being*. The cosmos itself does not partake of becoming. The plurality that makes up the cosmos has becoming. Various particular things come and go, in the flux of past, present, and future. Yet the cosmos itself, embraces all these together into a unified whole. In this reaching out to the idea of eternity, the cosmos is seen as an abstract oneness, ‘it is wise to agree that all things are one’.⁸²

For Parmenides the verbs *is* (*esti*), and *to be* (*einai*) function as a description of the cosmos. The *way of truth* is all about the way of the timeless *is*,

... that it is and that it is not possible for it not to be...
That which is there to be spoken and thought of must be.
For it is possible for it to be,
But not possible for nothing to be. ...
... mortals, knowing nothing...

for whom both to be and not to be are judged the same and not the same, and the path is all back-ward turning.

⁸¹ Heraclitus, 22 B 30 DK. Emphases added.

⁸² Heraclitus, 22 B 50 DK.

For in no way may this prevail, that things that are not are.

There is still left a single story
Of a way, that it is. On this way there are signs
Exceedingly many — that being ungenerated it is also imperishable,
Whole and of a single kind and unshaken and complete.
Nor was it ever nor will be, since it is now, all together,
One, continuous. For what birth will you seek it?
How and from where did it grow? I will not permit you to say
Or to think <that it grew> from what is not; for it is not
to be said or thought that it is not..
Thus it must either fully be or not.⁸³

Parmenides sets the timeless abstract language of the *is* (*esti*) in contrast to the narrative generations, births and deaths, time-bound mythos, of Homer and Hesiod. The philosophical language of the abstract *is* contrasts diametrically with the older narrative language.

This new mindset regarding the sayable, for Parmenides, coheres with what we now call ontology and epistemology. Being (*on*) is to be thought of in terms of the static timeless *is*, the cosmic world-order. As such it is a theoretical abstraction, and it is this abstraction that has the cognising and interpretive priority over naïve concrete experience.

But this theoretical disposition of thought is itself a *new* outlook, a new way of treating the concept of knowledge (*epistêmê*). To have knowledge, is itself to cognise in terms of the *is*, in terms of the static timeless *on* or *being* — the systematic world-order as a whole. You may not *know* that which *is not*,⁸⁴ you may only *know* the timeless *is*.

2.6.6 Empedocles (c. 495 – 435 BC)

Empedocles must also be included amongst the *oral* Presocratic philosophers. He too composed in hexameter verse, in his two philosophical poems *On Nature* and *Purifications*. He invokes the gods to give his poetic utterance guidance,

But, ye gods, avert from my tongue the madness of those men, and guide forth from
my reverent lips a pure stream!⁸⁵

⁸³ Parmenides, 28 B 2, 6, 7, 8 DK.

⁸⁴ See, Parmenides, 28 B 2 DK.

⁸⁵ Empedocles, 31 B 3 DK.

He further develops the method of abstract philosophical cognition pioneered by such figures as Xenophanes, Heraclitus and Parmenides. Along with Parmenides, abstract *Being* is the abstract order behind experience, which is used as a theoretical explanation of experience,

From what in no wise exists, it is impossible for anything to come into being; and for Being to perish completely is incapable of fulfilment and unthinkable; for it will always be there, wherever anyone may place it on any occasion.

But he (God) is equal in all directions to himself and altogether eternal...⁸⁶

He also deals with the abstract question of the relation between the one and the many — a problem to be taken up by Plato, most particularly in the *Parmenides* 136a, 137c, *Philebus* 14c – 17a, and *Sophist* 251b. This question arises in that once theoretical thought establishes the categories of plurality (*many*) and unity (*one*), then how are these two concepts to be harmonised together? Empedocles is one of the first to deal specifically with this issue,

I shall tell of a double (process): at one time it increased so as to be a single One out of Many; at another time again it grew so as to be Many out of One...

Thus in so far as they have the power to grow into One out of Many, and again, when the One grows apart and Many are formed, in this sense they come into being and have no stable life; but in so far as they never cease their continuous exchange, in this sense they remain always unmoved (unaltered) as they follow the cyclic process...⁸⁷

Whilst the cosmos remains the one unchanged abstract world-system, there nevertheless can be a harmonisation within this, of unity and plurality.

2.6.7 Literacy Among the Presocratics

Although we see a clear trend among the earlier Presocratics, on one hand, to maintain an oral-poetic medium, they nevertheless exercise, on the other hand, a clear desire to forge a new vocabulary, or perhaps more accurately, a transformed vocabulary and grammar.

This was the period when the literary art of alphabetic writing was starting to make its presence felt in Greek culture. The Presocratics stand in the middle of this cultural

⁸⁶ Empedocles, 31 B 12, 28 DK.

⁸⁷ Empedocles, 31 B 17 DK.

shift. It is not too long before the Presocratic philosophers themselves start adopting this new cultural form more self consciously.

Many of the Presocratics were making the shift towards composing primarily in a written medium. For example, Diogenes of Apollonia (c. late 6th – early 5th c. BC), probably a contemporary of Anaxagoras (b. c. 500 BC) wrote his philosophy in a treatise, rather than first composing it orally. He states,

Further, in addition to these, there are also the following important indications: men and all other animals live by means of Air, which they breathe in, and this for them is both Soul (Life) and Intelligence, as had been clearly demonstrated in this *treatise* [*sun-graphê* — literally ‘written composition’].⁸⁸

Even though we do not possess such an obvious example as this amongst other later Presocratics, it is nevertheless possible to surmise that they too were adopting writing as their primary medium.

Zeno (b. c. 490 BC), Melissus (*fl.* 440 BC), and Anaxagoras, all compose, not in poetry, but in prose. However, many of the fragments can be understood as still containing aphoristic influences.

Of the later Atomists, Democritus (460 – 370 BC), for example, also gives indication that he is now *writing* his philosophy, rather than composing orally,

If any man listens to my opinions, *here recorded*, with intelligence, he will achieve many things worthy of a good man, and avoid many unworthy things.

...and no one has ever surpassed me in the *composition of treatises* with proofs...⁸⁹

By the time we arrive at Plato, who is essentially the next generation after Democritus, we have a settled tradition of *written* philosophical prose.

2.6.8 The Presocratic Achievement

The above brief analysis suffices, I contend, to enable us to interpret the Presocratics as having pioneered a new way of life — a new philosophical vocabulary,

⁸⁸ Diogenes of Apollonia, 64 B 4 DK. Emphasis added.

⁸⁹ Democritus, 68 B 35, 299 DK. Emphases added. It should be noted that fragment 68 B 299 is generally considered to be spurious. It does however preserve an ancient witness to us that Democritus was considered to have *written* his philosophy in treatises. Given that Diogenes, living at an earlier period,

grammar, mindset, and worldview. They were breaking the mould in terms of the Greek mindset of Homer, and introducing something quite radically new into what will become the history of western civilisation.

Much more could be said, as is invariably the case in any scholarly investigation, on the nature of the Presocratic pioneering. For the purposes of this thesis, however, the main interpretive point, I maintain, has been raised for serious consideration.

One other important Presocratic, namely, Pythagoras, and the school associated with his name, I have not here examined. This is intentional, as I consider the Pythagorean influence upon Plato to be of such significance as to require a separate treatment, to be found in Chapter Four.

2.7 Plato — the Champion of a new Cultural Form.

It is in this historical context, of a shift from oral-mythical to literate-philosophical, that we must understand the figure of Plato.

Plato, I propose, should be understood as the champion of this newly arisen literate-philosophical cultural form. Yet he is a champion who stands on the border. There is a sense in which the history of western philosophy lies open before Plato. The development of culture along the lines of a theoretical attitude of thought has begun. Just as Socrates claimed the task of a *midwife* for his bringing to light the philosophical thoughts of others, so too Plato can be understood as the midwife who brought a philosophical disposition to full birth in the history of western culture. This is said, in light of the previous section, with the understanding that it was the Presocratics who impregnated Greece, and gave rise to the child.

Plato composes for us *written* dialogues. The dialogues are a superb and fine example of quality Greek literary craftsmanship. In this regard Plato stands in the literary tradition.

wrote in treatises, this fragment may still incidentally recount for us this aspect of Democritus' philosophical composition.

The question might naturally arise, however, that there seems a *prima facie* tension in Plato regarding literacy. I have submitted that Plato is championing the cultural form that was newly possible as a result of the literate shift, namely, philosophy. Yet, Plato appears to express regret or possibly caution at the introduction of literacy into Greece.

In particular *Phaedrus* 274e – 275b represents to us Plato's own critique of writing.

But when it came to writing Theuth said, 'Here, O king, is a branch of learning that will make the people of Egypt wiser and improve their memories, my discovery provides a simple recipe for memory and wisdom.' But the king answered and said, 'O man full of arts, to one it is given to create the things of art, and to another to judge what measure of harm and of profit they have for those that shall employ them. And so it is that you, by reason of your tender regard for the writing that is your offspring, have declared the very opposite of its true effect. If men learn this, it will implant forgetfulness in their souls; they will cease to exercise memory because they rely on that which is written, calling things to remembrance no longer from within themselves, but by means of external marks. What you have discovered is a recipe not for memory, but for reminder. And it is no true wisdom that you offer your disciples, but only its semblance, for by telling them of many things without teaching them you will make them seem to know much, while for the most part they know nothing, and as men filled, not with wisdom, but with the conceit of wisdom, they will be a burden to their fellows.'⁹⁰

This polemic against the written word was not something novel with Plato. As one can imagine, in a society where the written word was taking on enormous significance, and where people were beginning to think self-critically about their cultural institutions, then critiques of writing itself would soon emerge.

Alcidamas (*fl.* late 5th – early 4th c. BC), in his *written* work *Peri Sophiston*, ironically draws attention to the problems of the medium of writing. Among many points he makes is the following:

Therefore I shall undertake the following criticism of those who write speeches. ... In the first place, one would despise writing on the grounds that it is exposed to attack, and is an easy undertaking, available to anyone whatever natural ability he happens to have. ... In fact, when speeches are fashioned with verbal precision, resembling poems more than speeches, have lost spontaneity and verisimilitude, and appear to be constructed and composed with much preparation, they fill the minds of the listeners with distrust and resentment ... I do not even think it is right to call written texts "speeches" (*logoi*): rather, they are like images or outlines or representations (*mimemata*) of speeches, and it would be reasonable to view them in the same way as bronze statues or stone sculptures or pictures of animals. ... a written speech, which has just one form and arrangement, may have some striking

⁹⁰ Plato, *Phaedrus*, 274e – 275b.

effects when viewed in a book, but for a particular occasion is of no help to those who have it because it cannot change ... a speech spoken extemporaneously from one's own mind is animated and alive and corresponds to actual events, just like a real body, whereas a written text by nature resembles the image of a speech and is totally ineffective.⁹¹

Alcidamas sees that in some sense a written text is, as it were, fastened in concrete. It is not animated, the soul of the writer is unable to self-move through it.

And yet, here the paradox arises, how can he *write* a speech which opposes written speeches?

Perhaps some might say it is illogical (a-logos) that I criticize the ability to write while I present my case by this very means...⁹²

Alcidamas resists this paradox, and offers as a reason for his action that,

... I have uttered this speech not because I do entirely reject the ability to write but I consider it inferior to the ability to speak extemporaneously...⁹³

This, to some extent, also appears as Plato's dilemma. The theme of the inflexibility of the written word is no less apparent in Plato himself. A written work in fact freezes the text, so that there is no ability to move.⁹⁴

This is important when put in relation to Plato's concept of soul. One important aspect of soul is self-movement.⁹⁵ A spoken dialogue can be moved by the soul, but a written text cannot. It is forever fixed regardless of the condition of the soul.

Plato attaches importance to the idea of *recollection*. In the *Meno*, and later *Republic*, Plato presents us with the idea that knowledge is based upon recollection. That is to say, it is in *remembering*, or *recalling*, a prior familiarity with the Forms behind sense experience, that we think we are *learning*. It is not the assimilation of *new* things however, but the *remembrance*, or *recollection*, of old. The soul must, in an act of the self-moving agency, get itself together, in terms of *recollecting* the Forms that it knew in

⁹¹ Alcidamas, *Peri Sophiston* (*On Sophists*), or *On Those Who Write Speeches* 1,3,12,27,28. From, Gagarin and Woodruff (ed. & trans.), *Early Greek Political Thought*, pp. 276-282.

⁹² Alcidamas, *Peri Sophiston* (*On Sophists*), or *On Those Who Write Speeches* 29. From, Gagarin and Woodruff (ed. & trans.), *Early Greek Political Thought*, p. 282.

⁹³ Alcidamas, *Peri Sophiston* (*On Sophists*), or *On Those Who Write Speeches* 30. From, Gagarin and Woodruff (ed. & trans.), *Early Greek Political Thought*, p. 282.

⁹⁴ See, Plato, *Phaedrus*, 275c – 276a.

⁹⁵ Plato, *Phaedrus*, 245c – 246a, 'And if this last assertion is correct, namely that "that which moves itself" is precisely identifiable with soul, it must follow that soul is not born and does not die' (246a).

its pre-incarnate state.⁹⁶ The original condition of the soul was one of complete rational systematicity. That is to say, it *knew* the systematic and exhaustive groupings and inter-relations of the particular time-bound elements of sense experience *collected* by the Forms — a prior grouping of the aspects of sense experience, under an ahistoric timeless set of abstract categories, open only to rational cognition. To *re-collect* is to once again be cognisant of this original state of affairs.

True wisdom calls for the ability to look *not* to the flux, or change, of the world of our senses. Rather, we must turn to the non-sensate abilities of our rational mind, and by rational reflection come to wisdom.

This lays the groundwork for Plato's attack on the oral poetic mimesis, namely, that it is not knowledge (*epistêmê*). At best, it is merely a right opinion (*orthê doxa*). Along with Recollection, this contrast between *epistêmê* and *doxa* is also brought out in the *Meno*.⁹⁷ Once again, however, this discussion was already anticipated by certain Sophistic philosophers. Gorgias (c.480-375) in his *Defence of Palamedes* sets *epistêmê* and *doxa* in stark contrast.⁹⁸ He correlates *truth* with *knowledge*. To have a mere opinion (*doxa*) is not to be trusted relative to having the *truth*, and thus *knowing*.

Plato opposes what he takes to be the false view that wisdom and knowledge may be achieved as part of the external, sense-experience, task of *reminder via* exo-somatic markings. Instead, real wisdom is through *memory* — that is to say — the looking to oneself, and to one's non-sensate rational cognition, in order to come to wisdom.

One side-effect of alphabetic writing was that people did not seek *knowledge*, or *intellectual togetherness*, through *self-reflection* but rather through reliance upon external, exo-somatic (or better yet, *exo-psychic*) texts as reminders. This was anathema

⁹⁶ See, Plato, *Meno*, 80d – 86c.

⁹⁷ See, Plato, *Meno*, 96d – 100a.

⁹⁸ Gorgias states, 'It is thus clear that you do not have knowledge of the facts of your accusation. The only thing left is that you have merely an opinion without knowledge. Well then, most audacious of all men, do you dare to prosecute a man on a capital charge trusting only in an opinion, a most untrustworthy thing, without knowing the truth? How do you know he has done such a deed? All men have opinions about everything, and you are no wiser than others in this regard. One must not trust those who have an opinion but those who know; nor should one think opinion is more trustworthy than truth, but the reverse – truth is more trustworthy than opinion.' In, Gorgias, *Defence of Palamedes*, 24. DK 11a. From, Gagarin and Woodruff (ed. & trans.), *Early Greek Political Thought*, pp. 199-200.

to Plato, who saw any reliance upon sense-experience as inherently dubious. One could only rely upon the self-reflection of the non-sensate *rational soul*.

Of course, ancient *pre-literate* Greek society did not rely upon the rational reflection of the soul either. This idea was something only newly possible through the direction that the philosophers took in developing a new mindset. Even more so, it was something of which we must see Plato as being the culmination and cultural champion.

Pre-literate Greek society simply did not have the same understanding of what mankind was that the philosophers, and Plato specifically, later developed. In particular the anthropological understanding of man as an *immaterial immortal rational soul* was something quite new that arose through the Orphics and Pythagoreans, culminating in and championed yet again by Plato — as we shall see later (in Chapters Three and Four).

As noted above, the anthropological understanding of the oral, pre-literate, society of Greece was that of a *communal* personality. It would be by way of a reliance upon others, and the shared myths of the community, that *wisdom* would be found. Yet the traditional poets did not know the unchanging reality behind experience. They only spoke about the flux, the change, of sense-experience. They were esteemed as the teachers of Greece, but in reality they themselves knew nothing of the new *theoretical* way of life — the life of philosophy.

Here we must carefully distinguish between Plato as champion of the new philosophical way of life *brought about* by the oral – literate cultural shift, and Plato as a champion of *literacy per se*. He is most certainly the former, but not the latter.

For Plato, true knowledge may only be acquired through the self-movement of the soul, through the process of philosophical dialectic. The art of writing may encapsulate something of this (and hence the reason Plato employed the dialogue form in his writing), but writing is limited in that it is frozen into one set meaning, and cannot interact dialectically with its reader. It speaks the same message to anyone indiscriminately, and is unable to ascertain the level of understanding of its reader, and hence unable to comprehensively lead that reader on to knowledge, as dialectic should.⁹⁹ As such, writing

⁹⁹ Plato, *Phaedrus*, 275d-e.

itself is at best only the image of the living, breathing, discourse of the man who knows.¹⁰⁰ The traditional oral poets did not have knowledge, as they did not treat of unchanging reality, but only of the flux of sense-experience.

This is played out dramatically in the dialogue *Ion*. Here we meet a rhapsode, one who has committed to memory the entire corpus of Homer. Socrates engages with him in conversation, and seems to almost exude a perverse pleasure in showing that Homer, and the poets, and rhapsodes in general, really do not have anything knowledgeable to say about the various crafts and professions of the polis. In fact, the poet does not have any art or knowledge at all, rather he is possessed of a god.¹⁰¹

This is a common theme among the dialogues. In the *Apology*, Socrates states,

So I soon made up my mind about the poets too. I decided that it was not wisdom that enabled them to write their poetry, but a kind of instinct or inspiration, such as you find in seers and prophets who deliver all their sublime messages *without knowing in the least what they mean*.¹⁰²

Only the philosopher has true knowledge, and this may itself only be acquired through the self-movement of the soul, i.e. through the theoretical reflection of the soul, and not merely through the reading of a philosophical text.¹⁰³

For this reason, Plato should not be considered as championing *writing per se*. Nevertheless, paradoxically, as the elevation of theoretical thought only became possible, in ancient Greece, on the basis of the new art of literacy, then Plato must be considered as championing the new philosophical way of life, *engendered through* the advent of literacy.

¹⁰⁰ Plato, *Phaedrus*, 276a.

¹⁰¹ Plato, *Ion*, 533d – 536d. This passage speaks of the poet as losing himself under ‘inspiration’, much in keeping with the details given above in the section concerning *mimesis*.

¹⁰² Plato, *Apology*, 22b-c. Emphases added.

¹⁰³ This fact has led those scholars of the Tübingen school to emphasise the fundamental importance of an esoteric oral philosophy for Plato, not expressed in the dialogues – in particular a philosophy regarding ‘higher principles’ (archai). Regarding this oral philosophy, Plato was able to communicate it dialectically, defend it, and direct it towards those who were prepared in their philosophical training to receive it profitably. The dialogues then, function as texts that ‘point beyond themselves’ to Plato’s unwritten philosophy. See, for example, Thomas A. Szlezak, *Reading Plato*, and Hans Joachim Kramer, *Plato and the Foundations of Metaphysics: A Work on the Theory of the Principles and Unwritten Doctrines of Plato with a Collection of the Fundamental Documents*.

Plato then, not only expounded the new understandings of *literal truth*, and *knowledge*, which arise out of a literate-culture. He in fact combined this with the newly arisen anthropology to the extent that he was actually *looking ahead*, philosophically, past his contemporaries' assimilation of alphabetic literacy and reliance upon exo-somatic (exo-psychic) reminders, to complete (intra-psychic) rational comprehension via the philosophical self-reflection of the rational soul.

However, Plato's criticism of the traditional poets, particularly at the end of book two, along with books three and ten of the *Republic*, has been subjected to various interpretations amongst the commentators.

Havelock, for example, argues that Plato's criticism is an attack on poetry *per se*, which in turn is an attack on oral culture *per se*.¹⁰⁴ Havelock's insight into the fundamental importance of the oral – literate shift, and the role that the traditional poet played in Greek society as educator, is excellent without exception. Yet he overstates his case when it comes to role of poetry and myth in Plato. He envisions Plato as at root attacking all poetry *as poetry*, along with its accompanying mythological framework. This leads Havelock to suggest that Plato himself was not completely true to his new philosophical way of life, and in fact at times *betrayed* himself, especially in a strongly mythical dialogue such as the *Timaeus*.¹⁰⁵ This is an extremely controversial judgement to make, and is driven by, what must in the end be evaluated as, an anachronistic dichotomy of *philosophy verses religion*. Havelock's appraisal then, of Plato's relationship to poetry, cannot be accepted as it stands.¹⁰⁶ It utterly misses the core *religious* dimension of Plato, and merely focuses exclusively upon the cognitive oral –

¹⁰⁴ Havelock, *Preface to Plato*. For example, Havelock urges that, 'Plato's target seems to be precisely the poetic experience as such. ... He seems to want to destroy poetry as poetry, to exclude her as a vehicle of communication.', p. 5.

¹⁰⁵ Havelock, *Preface to Plato*, p. 271, 'The *Timaeus* is Plato's final tribute to this kind of speculative vision. But it is a vision, not an argument. Dare we suggest that in the *Timaeus*, for this very reason, he also accomplished the final betrayal of the dialectic, the betrayal of that Socratic *methodos* which had sought for formulae in order to replace the visual story by the purely abstract equation? There is to be sure a kind of algebra in the *Timaeus*. But it is well overlaid with the dream-clothes of mythology, and precisely for that reason the dialogue became the favourite reading of an age which clung to faith rather than science as its guide.' For a better, and in my opinion, more faithful, interpretation of Plato's intent in the *Timaeus*, see, Szlezak, *Reading Plato*, especially p. 106.

¹⁰⁶ See also, Murray, *Plato on Poetry*, p. 24, for a critical appraisal of Havelock.

literate shift as a framework of interpretation. This results in an impoverished reading of Plato, a reading which finally condemns Plato for such masterpieces as the *Timaeus*.

In distinction to Havelock, the work of Louise Pratt, offers valuable insight into the role of poetry for Plato.¹⁰⁷ Plato's criticism is levelled at the *traditional Greek poets*, not at poetry *per se*. His objections are primarily ethical — specifically, that the traditional poets fail to create good models for imitation, and do not know, and therefore cannot teach, excellence and virtue.¹⁰⁸ For Plato there can be no art of speaking well that is independent of the speaker's knowledge of his subject. The traditional rhetoricians possess no *technê*, they merely possess the trick of persuading and manipulating audiences. Likewise, the traditional poet is merely a kind of sophist who uses the same trick, but really has no knowledge of his subject at all.¹⁰⁹

The criticisms in the *Republic*, books two and three, are launched against the educational value of traditional Greek (specifically Homeric) poetry. *Republic*, book ten, focuses upon the dangers of the mimetic aspects of poetry. This again, however, should be set in the context of the activities of the traditional poets. They are ignorant of the Good. As such they can only imitate what *appears* good to them in their *opinion* — 'a secondary image that offers immediate gratification'. Traditional poetic mimesis is bad in that it 'presents models of good behaviour that are based on ignorance'.¹¹⁰

¹⁰⁷ Pratt, Louise H. *Lying and Poetry from Homer to Pindar*. In particular, pp. 146-156.

¹⁰⁸ See, Pratt, Louise H. *Lying and Poetry from Homer to Pindar*, p. 148, 'Plato objects not to poetic fiction as a mode of representation, as his own use of both mythical narrative and dialogue form shows, but to the ignorance of the poets, their lack of true knowledge of excellence that might enable them to teach others to be excellent. He primarily objects to an educational role given to poetry in Athenian culture ...'

¹⁰⁹ Pratt, Louise H. *Lying and Poetry from Homer to Pindar*, pp. 150-151.

¹¹⁰ Pratt, Louise H. *Lying and Poetry from Homer to Pindar*, pp. 152-153. Also, 'Poetry thus condones, even recommends, action that reason and questioning would reveal to be bad. The problem is that the poets are content merely to please, when they ought to be concerned with what is truly good. Again, the problem for Plato is not poetic fictionality but the effects of the poets' ignorance and their lack of interest in revealing what is good rather than what merely seems good. The poets appeal purely to the senses, and there is no knowledge of excellence to underlie their appeals. Plato, by calling into question the conformity of what appears beautiful (*kala*) and what really is beautiful calls into question the conformity of ethical and aesthetic value systems.', p. 153.

Pratt notes at least one positive instance of the correct use of poetry by Plato in *Republic*, book three. The *Noble Lie* (*Republic* 414b – 415c), recounts a myth of mankind divided into races of gold, silver, iron, and bronze.¹¹¹ Pratt comments,

But for Plato, his noble lie is superior to the lies of the poets he rejects, because it is told knowingly. It is designed to support a social structure that Plato feels is good in all ways, both for individuals, who are inherently inferior in Plato's construction, and for the good of the social order as a whole. The knowledge that informs it, its accurate reflection of the truly good, makes it an acceptable kind of lying within Plato's system.¹¹²

The Noble Lie then, contrary to the myths of the traditional Greek poets (such as Homer), functions instead as a right use of poetry or myth, in that it is composed and told by the philosopher who has the true knowledge of the Good.

If we understand Plato's objection to the traditional poets within this epistemological context then, we are in a better position to appreciate Plato's own positive use of poetry and myth, within what he considers to be a correct epistemological framework, i.e. a true knowledge of the Good.

Plato's attitude to myth might seem ambiguous. On occasion he has Socrates reveal a dislike and distrust for the myths.¹¹³ Yet Plato himself does not shrink from speaking, at times, in terms of myth. The end of both the *Phaedo* and *Republic*, are classic examples of this, as well as many other passages. Once again, we must bear in mind the Alcidian 'write to you in order to lead you away from writing' schema. Possible reasons for this use of myth by Plato will be discussed in more detail in Chapter Eight — Epilogue.

To here anticipate some of that discussion, one point of interest is the *content* of the Platonic myths. By far the great majority of them concern eschatology, namely, the

¹¹¹ Plato himself describes this myth as an old Phoenician story (*Republic* 414c). It also bears resemblance to Hesiod's ages of mankind expressed in terms of metals (Hesiod, *Works and Days*, 105ff).

¹¹² Pratt, Louise H., *Lying and Poetry from Homer to Pindar*, p. 154. Pratt also makes note of the Platonic distinction in *Republic*, book three, between 'lying in words', and 'really lying' (*Republic* 382a-b). Pratt states, 'Harmless fictions are simply a form of "lying in words," because they do not really misrepresent the world in a harmful way; they do not create harmful beliefs. Plato would surely judge his own dialogues and myths to be this kind of falsification, for they do not harm the soul of the listener but help it to see the real nature of the beautiful and good. But the stories of the poets go beyond this mere "lying in words," because they misrepresent the nature of the beautiful and the good by unknowledgeably mimicking a mere semblance of reality that offers momentary satisfaction to its audience. In Plato's view, nothing can be more harmful,' p. 154.

¹¹³ Plato, *Euthyphro*, 6a, 'It is because, whenever people tell such stories about the gods, I am prone to take ill, and, so it seems, that is why they will maintain that I am sinful.'

destiny or origin of the *soul*. In this regard they are quite unlike the Homeric poetry criticised by Plato. Homer does not have such an eschatology. Rather, Plato relies upon essentially Orphic mythologies and eschatology. He is synthesising into his own philosophy the eschatological mythology of the Orphics. This is part of the tradition that he is working within, I shall later propose, and is a clear indication of what line of thinking his audience is to take. Plato is taking the Orphic mythology, and transforming it in the direction of the new philosophical way of life, with its concerns for rationality, and abstract systemisation. This shall be the object of discussion for Part Two (Chapters Six and Seven) of this thesis.

Plato then, is consolidating together, in a more systematic and wide-ranging synthesis, the work of the Presocratics — the work which leads from an oral-mythical mindset, to a literate-philosophical mindset. He is the champion of which they were the pioneers.

Part One: Literacy, and the Rise of the Orphic Philosopher

Chapter Three: The Advent of Orphism

For some say that the body is the grave (σῆμα) of the soul which may be thought to be buried in our present life; or again the index of the soul, because the soul gives indications to (σημαίνει) the body; probably the Orphic poets were the inventors of the name, and they were under the impression that the soul is suffering the punishment of sin, and that the body is an enclosure or prison in which the soul is incarcerated, kept safe (σῶμα, σώζεται), as the name σῶμα implies, until the penalty is paid; according to this view, not even a letter of the word need be changed.

— Plato, *Cratylus*, 400b-c

In this chapter, I focus upon the religious shift engendered by Orphism. I argue that Orphism synthesised the older Apollonian (Olympic) and Dionysian religious impulses in ancient Greece. Importantly, through the advent of Orphism, a dualistic anthropology arose in the popular Greek mindset. The individual self was newly understood as a soul entombed in a body. This contrasts with the older Homeric anthropology, which understood humans as essentially holistic beings.

The Orphics likewise transformed the idea of immortality. Traditionally, immortality had meant that the name, and fame, of a hero lived on in the community memory. The hero was immortalised in the songs of the bard, or through the honours conferred upon him by the polis. The Orphics, however, connected the idea of immortality to their idea of the soul. It was the soul, as an individual essence, which was immortal. All souls originated from the Divine. Through some act of injustice, each soul was sentenced to a cycle of reincarnation, transmigrating to a new body when the old one died. This cycle could be broken, however, by entering into the Orphic purification rites, and living the Orphic way of life. If this was successful, then at the body's death the soul could be finally liberated to return back to its original home — the Divine.

3.1 The Religious Setting

In the previous chapter I analysed the radical cultural transformation that was engendered in ancient Greece, from the 8th – 5th c. BC — namely, the shift from an oral-mythical to a literate-philosophical way of life. Concomitant with this, was a shift in what we would today describe as *religion*. What must be borne in mind in describing this as *religious*, is that religion for ancient societies was not a distinct compartment of life, as it is often viewed today under the influence of a strong tradition of enlightenment sacred-secular dichotomising. We must avoid such enlightenment anachronisms in the study of ancient cultures, and be very careful not to read these modernist ways of thinking back into the ancient texts.

As such, the newly arisen literate-philosophical movement was just as intimately connected with the religious, as was the older oral-mythical culture. The way of life espoused by the Presocratic philosophers involved a critique and rejection of the older Homeric religiosity of the Greeks. But their own way of life was by no means anti-religious because of this. Rather, the philosophical tradition was making a radical critique of what the *Divine* meant, and was transforming this in accordance with their new outlook regarding rational systematicity and abstraction. For Plato, in particular, what I shall describe as a *philosophical monotheism* became the dominant expression of this transformed religiosity.

Even prior to the philosophical transformation of the religious-motifs, there was a new religious movement underway in this period of cultural transformation. This was pre-philosophical in nature, and formed the foundation of the religio-philosophical direction taken, via the Pythagoreans, by Plato. Not only so, but many aspects of Greek mathematical development itself may be illuminated in light of this new religious impetus, as I shall seek to argue in Chapter Five.

In this chapter I plan to focus primarily upon this radical and important shift within the religious climate of pre-Platonic Greece. Under focus here will be the *pre-philosophical* aspect of this religious background. The discussion of the *philosophical* uptake and transformation of this new religiosity will be deferred until Chapter Four.

The new religiosity under discussion is the advent of the *Orphic movement* in the archaic age. By examining this new religious impetus, I shall argue, we can more adequately understand *what* Plato was doing, both *philosophically* and *mathematically*, and *why* he was doing it. It was this Orphic religiosity that led Plato to treat of mathematics within his philosophy in the way that he did. This latter point shall specifically form the subject of Part Two of this thesis.

3.2 The Orphic Movement in Ancient Greek Culture

The rise of the Orphic mystery religions in ancient Greece fashions the religio-philosophical background for the advent of Platonism. In particular, the Orphics infused into the Greek culture an anthropology which was profoundly new with respect to the older Homeric mindset. Humans were newly conceived of as dual beings — an immortal soul entombed in a mortal body. This anthropological model was taken and elaborated upon by the philosophical schools, which most significantly developed the model so as to associate the soul with reason, and thus to introduce the doctrine of the immortal rational soul.

To examine the advent of the Orphic movement it must be set against the background of the then contemporary Greek religiosity. In this regard, I believe a very fruitful approach will be an analysis in terms of the dual religious impulses of Apollo and Dionysus.

3.3 The Apollonian – Dionysian Dual Religious Impulses

3.3.1 The Apollo – Dionysus Duality as an Interpretive Framework

In *The Birth of Tragedy*, Friedrich Nietzsche sought to analyse the movements in Greek art along the lines of an Apollonian and Dionysian tension.¹¹⁴

¹¹⁴ Of course, Nietzsche may not have been the first to take this line of analysis. McGahey cites Plutarch as being a possible source for this, with recurrences in Robert Fludd, Marsilio Ficino, and Friedrich Schelling. See, McGahey, *The Orphic Movement*, p. 11.

We shall do a great deal for the science of esthetics [sic.], once we perceive not merely by logical inference, but with the immediate certainty of intuition, that the continuous development of art is bound up with the Apollonian and Dionysian duality ... The terms Dionysian and Apollonian we borrow from the Greeks, who disclose to the discerning mind the profound mysteries of their view of art, not, to be sure, in concepts, but in the impressively clear figures of their gods.¹¹⁵

Whilst Nietzsche limited his discussion to the field of art, Dutch philosopher Herman Dooyeweerd sought to extend this method of analysis to the entire cultural-philosophical enterprise of ancient Greece. Dooyeweerd postulated that underlying the cultural-philosophical movements in ancient Greece, was a dualism of the basic-motives of matter and Form, symbolised by Dionysus and Apollo. Regarding the Dionysian motif he states,

The older religion of life deified the eternally flowing Stream of life, which is unable to fix itself in any single individual form. But out of this stream there proceed periodically the generations of transitory beings, whose existence is limited by an individual form, as a consequence of which they are subjected to the horrible fate of death, the *anangke* or the *heirarmene tyche*. This motive of the form-less eternally flowing Stream of life is the *matter-motive* of the Greek world of thought. It found its most pregnant expression in the worship of DIONYSUS, which had been imported from Thrace.¹¹⁶

As Nietzsche had associated the Dionysian impulse with the art-world of drunkenness,¹¹⁷ so Dooyeweerd extends this insight to the overall basic-motive of *matter* — the formless stream of life. Regarding the Apollonian impulse, Nietzsche sought to associate this with dreams. He states,

It was in dreams, says Lucretius, that the glorious divine figures first appeared to the souls of men; in dreams the great shaper beheld the splendid corporeal structure of superhuman beings...¹¹⁸

It was this aspect of superhuman beings that gave definite content to the *cultural forms* of Greek thought, which Dooyeweerd took as the basic-motive of *Form*.

On the other hand, the form-motive was the main spring of the more recent Olympian religion, the religion of form, measure and harmony, which rested essentially upon the deification of the cultural aspect of Greek society (the Olympian gods were personified cultural powers). It acquired its most pregnant expression in the Delphic Apollo as law-giver.

¹¹⁵ Nietzsche, *The Birth of Tragedy*, p. 167.

¹¹⁶ Dooyeweerd, *A New Critique*, Vol.1, p. 62.

¹¹⁷ Nietzsche, *The Birth of Tragedy*, p. 168.

¹¹⁸ Nietzsche, *The Birth of Tragedy*, p. 168.

The Olympian gods leave mother earth with its ever flowing Stream of life and its threatening *anangke*. They acquire Olympus for their seat, and have an immortal individual form, which is not perceptible to the eye of sense. But they have no power over the fate of mortals.¹¹⁹

The analysis of Greek intellectual life according to the categories of matter and Form, as adopted by Dooyeweerd, has recently come under close scrutiny and criticism. Ralph W. Vunderink has surveyed the extent of the reactions to Dooyeweerd.¹²⁰ A.P. Bos, whilst noting the indebtedness of Dooyeweerd's view to Nietzsche, objects that such a position is unable to be maintained today.¹²¹ Dooyeweerd had mistakenly conceived of the basic-motives as progressing in an historically linear manner from Dionysian to Apollonian. However, recent religious and archaeological scholarship suggests, contrary to this, that the 'older native and younger foreign cultures' lived simultaneously with each other.¹²² In addition to this, the religiosity of the earlier Minoan-Mycenaean period already bore similarity to that of the later classical Olympic religiosity.¹²³ Bos considers Dooyeweerd's analysis to be 'a stimulating, but mistaken grasping'. Whilst rejecting the Form — matter interpretation of Greek *thought*, Bos nevertheless recognises a dialectic tension within Greek *philosophy* itself.¹²⁴

Vunderink himself suggests, by way of 'a modest revision', that rather than categorising the Apollonian – Dionysian tension as between Form and matter, it would be better, and more historically accurate, to conceive of it as between Being and Becoming. He states,

Actually, we need only fine tune Dooyeweerd's interpretation. If we look at the Greek landscape, we witness the Platonic polarity between "becoming" and "being", a perspective Dooyeweerd describes as a deification of the "ever-flowing stream of organic life" and of "the cultural aspect" of life. In the actual unfolding of Greek

¹¹⁹ Dooyeweerd, *A New Critique*, Vol.1, p. 62.

¹²⁰ Vunderink, Ralph W. "Ground Motifs", pp. 157-177.

¹²¹ Bos, A.P. *In de Greep van de Titanen*. See also, Bos, A.P. "Dooyeweerd and de Wijsbegeerte van de Oudheid".

¹²² Vunderink, Ralph W. "Ground Motifs", p. 163.

¹²³ See also, Parker, Robert, "Greek Religion". In, Broadman, *et al.* (eds.), *The Oxford History of the Classical World*. Parker states, 'Thanks to the decipherment of the Linear B script in 1952, we can give some account of the state of Greek religion in the period 1400-1200 BC. The Linear B tablets reveal that the pantheon of this Minoan-Mycenaean civilization was already to a large extent that of classical Greece', p. 269.

¹²⁴ Bos, A.P. "Dooyeweerd and de Wijsbegeerte van de Oudheid", p. 220. Summarised by Vunderink in, "Ground Motifs", p. 163. For more discussion on Bos' interaction with Dooyeweerd, see also, Runia, D.T. "Dooyeweerd, Bos, and the Grondmotief of Greek Culture".

philosophy, ironically, Dooyeweerd interprets Plato as playing a more pivotal part than does Aristotle.¹²⁵

Vunderink cites the historical analysis of W. Young in support of this revision.¹²⁶

The work of Francis Cornford also serves to confirm this interpretation. He also pays tribute to Nietzsche, whose analysis he considers a 'work of profound imaginative insight, which left the scholarship of a generation toiling in the rear'.¹²⁷ Cornford notes the dualistic tension between the Mystery god, identified primarily with Dionysus, and the Olympian divinities. He states,

The essential difference between these two types of God, which persists in spite of all reaction between them, is that the Mystery God is, from first to last, the daemon of a human group, while the Olympian God develops out of the daemon of a local department, who has become distinct from his worshippers.¹²⁸

Here, in this thesis, I shall follow the insight of Nietzsche, Dooyeweerd, Cornford, and Vunderink, by analysing the Orphic movement as a synthesis between the Apollonian (or Olympian) and the Dionysian religious-motifs. In Chapter Four, I shall analyse these impulses as having been philosophically transformed, by the Greek philosophers, into the concern between Being and Becoming, a concern which is particularly prominent in Plato. This method of analysis will provide a helpful and fruitful framework in which to investigate both the advent of Orphism and Greek philosophy itself.

My method of approach here will be to paint a picture of what the religious-motifs of Apollo and Dionysus each consist in separately. In the next section, Orphism will be discussed as the synthesis between these dual religious tensions.

3.3.2 Dionysus

Concerning the cult of Dionysus, Nilsson argues that its basis was formed by the 'ideas of birth and death, germination and decay, derived from Nature's changes'.¹²⁹ He maintains that the cult itself was of 'primitive origins', and was marked by its adherents'

¹²⁵ Vunderink, Ralph W. "Ground Motifs", p. 163.

¹²⁶ Young, W. "Herman Dooyeweerd", p. 297, 'The dominant metaphysical opposition between being and becoming in Greek philosophy must be understood as the expression of this religious motive'. As cited by Vunderink, Ralph W. "Ground Motifs", p. 163, footnote 6.

¹²⁷ Cornford, *From Religion to Philosophy*, pp. 110-111.

¹²⁸ Cornford, *From Religion to Philosophy*, p. 111.

¹²⁹ Nilsson, *A History of Greek Religion*, p. 210.

practice of *ecstasy*. This aided the activities of prophesying and purification, perhaps having originally functioned to arouse the fertility of nature. Even more importantly, it also allowed the practitioner to 'enter into communion with the divine, to feel himself lifted up from the temporal into the spiritual'.¹³⁰

The Mystery (Dionysian) impulse embraced not only human life, but also the entire animate world. It contained the idea of a cyclic stream of life, the 'birth death and rebirth in the wheel of reincarnation'.¹³¹ It conceived all life as one, with nature and man in close interconnection. The practical worship of its adherents involved either *enthusiasm* (as the god entered into the human group, and they were *ἐνθεοί* — *entheoi*) or it involved the complementary *ecstasy* (where man transcended his individuality and become at one with the All — the Divine). This form of religious impulse emphasised the solidarity of the group, and Cornford argues that it must take expression, not in polytheism, but rather in some form of pantheism or monotheism.¹³²

Dionysus receives scant attention in Homer. A plausible explanation for this may be that the Dionysian cult was associated with the lower classes, whereas Homer is understood to express the religiosity of the upper classes, which were connected with the Olympian (Apollonian) cult.

Certainly, in terms of Greek evidence, Dionysus is of great antiquity. He is spoken of in the Linear B scripts of Pylos, of the ancient Minoan civilisation.¹³³ There also stands a shrine dedicated to him in Keos, dating from c. 1500 BC. The dithyrambos is an ancient hymn form of Dionysus.

The myths surrounding Dionysus involve his entry into a village, for his cult to be refused by the leaders, and for Dionysus to then turn the women of the village mad. They were transformed into Maenads. These women ritually abandoned their husbands and children, then took young creatures and tore them to pieces (*sparagmos*) and ate the raw meat (*omophagia*). This parallels one of the myths surrounding Dionysus himself, who in Orphic mythology was torn apart and consumed by the Titans when a young child.

¹³⁰ Nilsson, *A History of Greek Religion*, p. 205.

¹³¹ Cornford, *From Religion to Philosophy*, p. 111.

¹³² Cornford, *From Religion to Philosophy*, pp. 111-113.

There was a series of four festivals in Greece, dedicated to Dionysus.¹³⁴ The Lenaia was the festival of the new wine, surrounded with orgiastic intoxication. But this was only the precursor for the Anthesteria, the chief of the Dionysian festivals. These two formed a single festal whole. The second festival was the Agrionia, which commemorated the Minyades. When they refused Dionysus, he turned them mad, which resulted in the killing of Hippasus, the child of Leucippe. It also commemorated the birth of Dionysus.

In the third festival the rural celebrations of Dionysus involved the sacrifice of a goat, a procession, and dramas of satyrs. The fourth festival, the Greater Dionysia or Katagogia, was dedicated to the god's coming by sea-boat.

Dionysus is closely connected with procreation, as is evidenced in the orgiastic rites, as well as wine and blood, symbolised in the wine juice.

Musically, the Phrygian mode is the Dionysian. This style of musical performance was typified by the dynamism of hysteria and silence, and of the one voice against the many, as exemplified in Greek tragedy with its use of the chorus.

3.3.3 Apollo

The Olympian religion stands in contrast to the Dionysian mysteries, according to Cornford. With the increase of the individual's self-consciousness the Divine acquires a 'quasi-individual personality'.

...the relation of the worshipper to God cannot be one of communion: the worshippers cannot re-create and feed him with their own emotional experience in mystical rites. God and worshippers do not form one solid group, but confront one another...¹³⁵

A sacrifice is needed to function as a gift or bribe rendered to obtain services from the god. The Olympian divinity can only ever be an *eidōs* or species, and is without any 'inward principle of life and growth — immortal and immutable'.¹³⁶

¹³³ See, Parker, Robert, "Greek Religion". In, Broadman, *et al.* (eds.), *The Oxford History of the Classical World*, pp. 269-270.

¹³⁴ See, McGahey, *The Orphic Movement*, pp. 14-15.

¹³⁵ Cornford, *From Religion to Philosophy*, p. 114.

¹³⁶ Cornford, *From Religion to Philosophy*, p. 115.

Worship of Apollo, in ancient cultures, was centred in at least three localities, a Dorian-northwest Grecian, a Cretan-Minoan, and a Syro-Hittite. In Greece, Delphi and Delos were the two main centres of the Apollonian cult.

Delos was the place where Leto gave birth to Apollo, and where his twin sister the goddess Artemis both aided his birth, and governed prior to his coming.

Delphi, prior to the coming of the Apollonian cult, was the cult-centre for Gaia — the Earth. Apollo slew the Python there, and so gained the ascendancy over Gaia. The Pythia, or prophetess, was maintained in the Apollonian cult in Delphi however, and became the one who pronounced the famous declarations of the oracle. Delphi will be important in the next section when the Orphic synthesis is considered.

The initiation of the young man from childhood to adolescence was connected with Apollo. As such, there was a tendency to worship and adore young boys, on the verge of adolescence. Apollo was also the god of the sun (Helios), the god of healing, and almost antithetically, the god of the plague.

Both he and his sister goddess, Artemis, were strong archers. Artemis concerned herself with hunting in particular. The lyre and the war bow are interconnected symbols for Apollo. As McGahey states,

Apollo's bow is twinned with the lyre. Like the lyre, the bow sings when plucked; like the bow, the lyre flings its arrow-songs unerringly at their targets.¹³⁷

In fact Apollo, more than any other Olympian deity, is intimately associated with music. The Muses were his handmaidens. The ideals of harmony, temperance, and balanced proportion, were inherent within the Apollonian cult.

Unlike Dionysus, who is intimately identified with his worshippers, Apollo commanded a respectable distance. He was a god of the polis, the founder of cities, such as Troy.

It was in connection to this Delphic oracle, that Apollo's other main characteristic was identified, namely, that of law-giver. Through the oracle he arbitrated cases, directed the cities, and fashioned a legal code for panhellenic Greece.

¹³⁷ McGahey, *The Orphic Movement*, p. 12.

Nilsson notes that Apollo was thought of as the lawgiver,

The ancient traditions of the support and help of Apollo in establishing the civil law are in harmony with the temper and requirements of the age.

...men needed a divine court of appeal, some divine authority which would tell them what was fitting and right... Apollo was ready to help, either by means of his oracle or through his deputies, the 'interpreters' (exegetes).¹³⁸

At a time of 'political and social unrest and distress', it was Apollo who acted as the agent to bring peace between the gods and men. But as an Olympian deity, he could only serve to reinforce the extant ritual practices of the people.¹³⁹

Ritual laws regarding purification were also identified with Apollo. This will be of paramount importance, both in connection to the Orphics, and in connection to Plato's treatment of mathematics, as I will discuss in Chapter Seven. Katharsis (*purification*) was obtained through rites that removed the miasma (*pollution*) on the worshipper. This was manifest in two ways. Firstly, with the adoration of male boyhood-adolescence. The initiate into manhood was to be pure. Secondly, Apollo himself was understood to return to the Hyperborean lands, to the north of Greece, whence he was thought to have originally come. In so doing, he ritually enacted a katharsis upon himself.

3.4 The Apollonian – Dionysian Synthesis in the Advent of the Orphic Movement

As I discussed in Chapter One, the Orphic movement in ancient Greece is an area of scholarship that has suffered many debates over the years. I accept, along with Jaeger,¹⁴⁰ Guthrie,¹⁴¹ and McGahey,¹⁴² that there was indeed a cultural movement in ancient Greece c. 5th c. BC, which can be identified as Orphic. This is to say neither that there was a single unified cultural establishment or institution, known as Orphism, nor that there necessarily exists a well-defined way to demarcate this movement. What it is to say, however, is that significantly new revisions of the traditional Greek praxis and myth

¹³⁸ Nilsson, *A History of Greek Religion*, pp. 190, 191.

¹³⁹ Nilsson, *A History of Greek Religion*, pp. 199-201.

¹⁴⁰ Jaeger, *Theology of the Early Greek Philosophers*. Also, Jaeger, "The Greek Concept of Immortality".

¹⁴¹ Guthrie, *Orpheus and Greek Religion*.

¹⁴² McGahey, *The Orphic Movement*.

were being made, such that these can be most helpfully analysed together under the common thread of *Orphism*. This does not entail any further commitment as to whether there *actually existed* an historical figure that could in some sense be identified as Orpheus. Rather, it merely declares that the figure of Orpheus, whether in any way relating to an historical figure or not, forms the common thread in these significantly new religious developments.

This new Orphic religiosity, I submit, presents to us a synthesis, or coming together, of the older religious-motifs of Apollo and Dionysus.

The mythologies associated with Orpheus, although all containing similar thematic elements, are often varied. The first element in such mythologies was a theogony, or an account of the generation of the gods, including those parts of the cosmos that were conceived of as divine.

The most extensive Orphic theogony that we possess is that known as the Rhapsodic theogony, of late Hellenistic date (c. 1st c. BC). It embodies a synthesis of many of the other theogonic strands in Greek myth.¹⁴³ From this, we may gain the general thrust of the Orphic mythology.¹⁴⁴

Chronos (Time) and Nyx (Night) play a formative role at the beginning of the cosmos. A cosmic egg is generated (unique to the Orphics within Greek mythology),¹⁴⁵ and from this Phanes-Eros is born. Phanes gives birth to the generations of the gods, which include Uranos and Ge (Heaven and Earth) and the Titans (among them, Kronos and Rhea). From Kronos and Rhea come the Olympian gods, Zeus being chief among them. Zeus becomes the father of the gods by defeating Kronos, and consuming all that he was into himself. Zeus, by Leto, begets Artemis and Apollo. He also mates with Kore (in the form of a snake) begetting Dionysus.

Zeus elevates Dionysus to his throne, and pronounces him as the new king. The Titans, either through their own jealousy or goaded by the jealousy of Hera, deceive the

¹⁴³ For more extensive discussion of Orphic Theogonies see Chapter Six.

¹⁴⁴ The following details, of the Orphic theogony, are derived from, West, *The Orphic Poems*, pp. 70-75. See also, McGahey, *The Orphic Movement*, pp. 21-23; Guthrie, *Orpheus*, pp. 70ff.

infant Dionysus with a mirror, and other toys. They then tear him into pieces (*sparagmos*), boil, roast and finally eat him (*omophagia*). Athena, however, preserves the heart of Dionysus, and carries it to Zeus. From this heart a new Dionysus is reborn. The limbs of Dionysus, retrieved from the Titans, are given to the care of Apollo who ensures they are buried. In his wrath, Zeus strikes the Titans down with a thunderbolt, and turns them to ashes. From this ash, Zeus fashions a new race of humans, who although having mortal bodies, nevertheless have immortal souls.

A theogony embodying these basic themes stands at the head of the Orphic mythology. After this, follows the mythology regarding the figure of Orpheus himself.¹⁴⁶

Orpheus was the son of both Kalliope — the Muse of Apollo — and of either Oiagros, or in some variations Apollo himself. Oiagros, a river god, was King of Thrace, and his father Charops was taught by Dionysus. Some further variations even put Musaios as the father of Orpheus.

Orpheus is married to Eurydice, and they have a son Musaios. Orpheus is a famous musician, who sings, writes poetry and music, and plays the lyre. His voice charms the animals, fish, and plants. His lyre he received from Apollo.

Eurydice, the wife of Orpheus, is tragically killed when a viper bites her heel. This was a result of her being pursued by Aristeeas, who was a bee-keeper associated with Apollo. Orpheus, stricken with grief, follows after her into the halls of Hades, in order to return her to the land of the living. Orpheus charms the inhabitants of Hades with his songs. The god Hades agrees to release Eurydice to Orpheus, but with the requirement that Orpheus cannot look back at her until they have left the realm of Hades.

Hermes leads them out, but Orpheus, unsure, looks back. In so doing he loses Eurydice forever. Torn with remorse, he spurns women, and worships Apollo the Sun (Helios) on the mountain Pangaion, in Thrace. The men of Thrace join him in his worship. A 5th c. BC Attic vase painting captures the figure of Orpheus, almost in a

¹⁴⁵ Guthrie notes that many have tried to trace this egg motif back to the Indians, Persians, Assyrians, Egyptians, and even Siberians. Aristophanes (c. 444 – 385 BC) testifies to this cosmogonic motif in his play, *Birds*, 693ff. See, Guthrie, *Orpheus*, pp. 92ff.

¹⁴⁶ The following details, of the life of Orpheus, are derived primarily from, McGahey, *The Orphic Movement*, pp. 16-18. See also, Guthrie, *Orpheus*, Ch.2.

trance with his head cast back, as he charms, and worships with, the Thracian warriors around him.

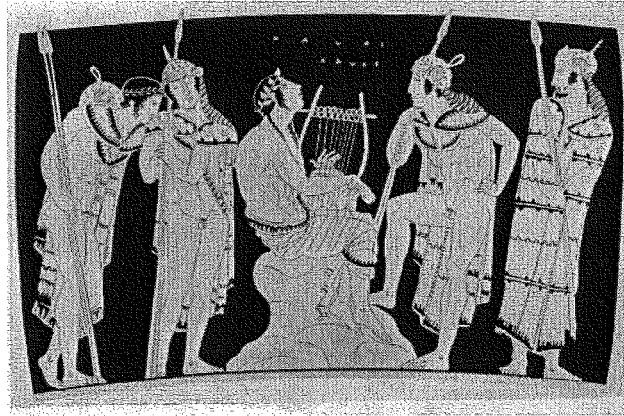


Figure 1

The women of Thrace, however, are jealous that Orpheus has led their husbands awry. They become maenads, and attack Orpheus, whilst screaming in their Phrygian frenzy. They tear him to pieces (*sparagmos*), and cast his body away. In some other variations the Muses take the body. Another vase painting captures this moment.



Figure 2

Meanwhile, the head and lyre of Orpheus drift along the Hebrus river, and finally arrive at Lesbos. Apollo saves the head from the jaws of a snake, and it rests at the shrine of Dionysus. Orpheus' head prophesises until finally silenced in envy by Apollo. The lyre is placed in the shrine of Apollo, and eventually is transformed into Lyra, the constellation. The wrath of Dionysus is unleashed upon the women-maenads of Thrace.

The themes of the Orpheus story, in light of the mythology of Apollo and Dionysus, reveal a very marked fusion between these two deities.

The following points of synthesis, among many, should be noted.

Dionysian Elements:

- (1) Orpheus has connections with Dionysus in his birth. His grandfather Charops was a pupil of the god, and on the Oiagros account, his father was king over the Dionysian region of Thrace.
- (2) In his death, Orpheus re-enacts the Dionysian myth. Dionysus was killed by the mad Titans, who ripped him apart (sparagmos) and ate him. Orpheus was killed by being torn to pieces by the mad women, turned into Maenads (the wild Dionysian inspired women). They are involved in an ecstatic musical frenzy, in the Phrygian mode — the mode of Dionysus.
- (3) The prophesying head of Orpheus comes to rest in the Dionysian shrine.
- (4) It was Dionysus who took vengeance upon the Maenads for their sparagmos of Orpheus.

Apollonian Elements:

- (5) Just as with Dionysus, Orpheus has connections with Apollo in his birth. Kalliope, his mother, is a Muse of Apollo. In some versions his father is in fact Apollo.
- (6) Like Apollo, Orpheus is strongly connected to *mousikê* (the art of song, drama, dance, and poetry). He can control the animals and men with his song. His lyre came from the god Apollo. After his death, his lyre rests at the shrine of Apollo.
- (7) The latter end of Orpheus' life is lead in the worship of Apollo as the sun god. He leads other men to the same task.
- (8) Just as with Dionysus, Orpheus is also associated with Apollo in his death. It is Apollo who saves the head of Orpheus from being consumed by the snake. This is reminiscent of the establishment of the Oracle of Delphi, which Apollo founded by the slaying, once again, of the snake (python). This draws a connection between Delphi and Orpheus. The head is eventually silenced, as Apollo perceives it to be in competition with him.

It is not only in the Orphic mythologies that we discover a fusion of Dionysus and Apollo. Guthrie suggests that the historical Orpheus, if such a figure existed, may have

been a Greek priest of Apollo who was sent to the Thracian north, on a missionary journey to quell the orgiastic and wild Dionysiac Thracians. In the process he developed a religious programme of an Apollonian – Dionysian synthesis.

It is difficult to rid the mind of this picture of Orpheus as in origin the missionary of the Hellenic spirit in a land whose religion, like the rest of its civilisation, was barbarous and untamed ... There is plenty of evidence for the interaction of Apolline and Dionysiac religion before then [i.e. before the 6th c. BC Italian mystical sects], and some of the work of reconciliation may well have been attributed already to one who was so well-suited to act as a mediator, one who, though priest and prophet of Apollo, had in the first place always had a streak of mysticism in him ...¹⁴⁷

The Orphic movement, then, synthesised in a new way the religious elements of the cults of Apollo and Dionysus.

3.5 The Orphic Shift in Anthropology

3.5.1 The New Myth of Mankind

Through the Orphic movement, a new *anthropological* outlook was also introduced into ancient Greece. Prior to the advent of Orphism, the Greeks possessed what I shall describe as an *holistic* anthropology. That is to say, they implicitly understood themselves as essentially unitary and holistic beings, not divided or compartmentalised into ontological sections or parts. This is the anthropological picture revealed to us in the pre-Orphic works of Homer.

The new myth told by the Orphics, as noted in the previous section, was that humanity had a two-fold origin, or a dualistic nature. Nilsson recounts the myth as follows.

By Persephone, the queen of the lower world, Zeus had a son, Dionysos-Zagreus. Zeus intended the child to have dominion over the world, but the Titans lured it to them with toys, fell upon it, tore it to pieces, and devoured its limbs, but Athena saved the heart and brought it to Zeus, who ate it, and out of this was born a new Dionysos, the son of Semele. The Titans were struck by Zeus' avenging lightening, which burned them to ashes. From the ashes man was formed, and he therefore

¹⁴⁷ Guthrie, *Orpheus*, pp. 45-47. Cf., McGahey, *The Orphic Movement*, p. 20.

contains within himself something of the divine, coming from Dionysos, and something of the opposite, coming from his enemies, the Titans.¹⁴⁸

Man has a mortal body, made of the earth, inherited from the ashes of the Titans. He also has a divine soul, inherited from the consumed remains of Dionysus.¹⁴⁹ We have here the advent of a strong body-soul dualistic anthropology, which is vitally significant for the role played by mathematics in the philosophy of Plato, as I shall argue in Chapter Seven.

That this Titanic-Dionysian (body-soul) anthropology was not only contemporaneous with Plato, but was in fact a well-established myth in Plato's time, can be evidenced in the *Laws*. Here Plato refers to our *Titanic* nature, of which the 'old legends speak':

The spectacle of the titanic nature of which our old legends speak is re-enacted; man returns to the old condition of a hell of unending misery.¹⁵⁰

3.5.2 The Holism of Homeric Man

We have already seen in Chapter Two, that the way of life represented in the Homeric corpus was essentially oral-mythical. Concomitant with this oral-mythical paradigm, is the understanding of a human as an *holistic* being.

This can be initially evidenced, in fact, by the structure of the very opening lines of the *Iliad*, which state,

Sing, goddess, the anger of Peleus' son Achilleus and its devastation, which put pains thousandfold upon the Achaians, hurled in their multitudes to the house of Hades strong *souls* [ψυχαί — *psuchai*] of heroes, but gave *they themselves* [αὐτοί — *autoi*] to be delicate feasting of dogs, of all birds, and the will of Zeus was accomplished...¹⁵¹

¹⁴⁸ Nilsson, *A History of Greek Religion*, p. 216.

¹⁴⁹ The Neoplatonists, such as Olympiodorus (who recounts this story *In Phaedonem* 1.3,5), extract from this some quite sophisticated ramifications. Not only are we part of Dionysus, but his division into many parts also symbolises the plurality of ethical and physical virtues, and the plurality of sense-experience. West rightly dismisses this elaboration as a distinctly Neoplatonic interpretation. See, West, *The Orphic Poems*, p. 164.

¹⁵⁰ Plato, *Laws*, III: 701c.

¹⁵¹ Homer, *Iliad*, 1.1-5. Emphases added. Adapted from the Lattimore translation. Lattimore makes the error of translating 'autoi' here as 'their bodies'. This is not only badly translated, as the text makes no mention of *bodies*, but is also badly misleading, as it anachronistically reads in a duality between the *psuchê* of the Heroes, and the *bodies* of the Heroes.

The Heroes *themselves* are what the dogs and birds eat up. Homer does not identify the *psuchai* of the heroes, which are hurled to Hades, as the Heroes themselves. There is altogether a very real danger, with Homer, in translating the word '*psuchê*'¹⁵² as 'soul', as this latter term has a long history in its English usage in the context of a body-soul dualism.

Various attempts have been made over the years to deal with the Homeric use of the term '*psuchê*', most notably that of Rohde,¹⁵³ Otto,¹⁵⁴ Bickel,¹⁵⁵ Bohme,¹⁵⁶ Regenbogen,¹⁵⁷ Dodds,¹⁵⁸ Bremmer,¹⁵⁹ and Jaeger.¹⁶⁰ The interpretation of the Homeric anthropology that I shall adopt in this thesis is essentially that of the recent study in this field by Michael Clarke.¹⁶¹

Clarke is acutely aware of the dangers of anachronistically reading in later anthropological concepts into the Homeric texts. The temptations of the lexicographical method must also be avoided, with its quest for basic word for word translations. Key English terms such as 'soul', 'body', 'mind', and 'self', have 'an especially insidious power over the categories of our thought'.¹⁶² Clarke's conclusions help consolidate the thesis I wish to here present and defend.

For Homer, a human was always thought of as a whole. Even in death Homeric anthropology speaks of the human as a whole being, although of course severely weakened and stripped by death. Homer knows nothing of an anthropological duality.

We find in Homer four basic categories of anthropological terminology:¹⁶³

¹⁵² The Greek word ψυχή can be transliterated into English as either, '*psuchê*' or '*psychê*'. The Greek letter upsilon being either rendered by an English 'u' or 'y'. In this thesis I shall use '*psuchê*', unless quoting from another source, or referring to another authors use of that term as '*psychê*'.

¹⁵³ See, Rohde, Erwin, *Psychê – Seelenkult und Unsterblichkeitsglaube der Griechen*.

¹⁵⁴ See, Otto, W.F. *Die Manen oder Von den Urformen des Totenglaubens*.

¹⁵⁵ See, Bickel, Ernst, "Homerischer Seelenglaube; geschichtliche Grundzüge menschlicher Seelenvorstellungen".

¹⁵⁶ See, Bohme, J. *Die Seele und das Ich im homerischen Epos*.

¹⁵⁷ See, Regenbogen, O. "Δαιμόνιον ψυχῆς φῶς: Erwin Rohdes Psychê und die neuere Kritik".

¹⁵⁸ See, Dodds, E.R. *The Greeks and the Irrational*.

¹⁵⁹ See, Bremmer, Jan, *The Early Greek Concept of the Soul*.

¹⁶⁰ See, Jaeger, Werner, *Theology of the Early Greek Philosophers*. See also, Jaeger, "The Greek Concept of Immortality".

¹⁶¹ In, Clarke, *Flesh and Spirit*.

¹⁶² Clarke, *Flesh and Spirit*, p. 39.

¹⁶³ Clarke, *Flesh and Spirit*, pp. 53-54.

(A) Locus of mental life: κῆρ, ἦτορ, φρένες, κραδίη, πραπίδες (*kêr, êtor, phrenes, kradiê, prapides*)

(B) Products of mental life: μῆτις, νόημα, βουλή (*mêtis, noêma, boulê*)

(C) What is lost at death: αἰών, μένος (*aiôn, menos*)

(D) What survives in the afterlife: νέκυς, εἶδωλον (*nekus, eidôlon*)

The three remaining anthropological terms can be categorised in more than one group:

νόος (*noos*) - (A) and (B)

θυμός (*thumos*) - (A) and (C)

ψυχή (*psuchê*) - (C) and (D)

The mental or psychological terms (from categories (A) and (B) including *thumos*, and *noos*), reflect a single human whole.¹⁶⁴ Many of these terms can be interchanged as metrical structures demand, but they all speak of an undivided identity.¹⁶⁵ They can be applied both to the agent that is thinking/feeling, and to that which is thought/felt. This suggests that no strong division or dichotomy exists between the agent himself, and the content of the agent's thoughts or feelings.¹⁶⁶

The locus of these activities of consciousness centres in the chest or breast. It is not in the head or brain, as we would today describe it. The organs of the chest are closely interconnected with the conscious life of a man,¹⁶⁷ where the movement of breath is understood as the movement of thought and passion.¹⁶⁸ *Thumos* is breath that is 'vigorous, self-propelling, with the strong swift movement that marks the actions of both warrior and thinker'.¹⁶⁹ So, for example, the giving over to strong emotion is understood as the entering into the breast of new oozing liquids.¹⁷⁰ To be weak, or to yield to

¹⁶⁴ Clarke, *Flesh and Spirit*, p. 61, 'The sum of the argument will be that these things are manifestations in action of an indivisible human whole, a whole where the complexities of mental life make sense best if apprehended without trying to divide man into mind and body.'

¹⁶⁵ Clarke, *Flesh and Spirit*, pp. 63-66.

¹⁶⁶ Clarke, *Flesh and Spirit*, pp. 66-69. Clarke states, 'The semantic range of each noun in the θυμός [*thumos*] family varies between two poles: from actor to activity, from agent to function, from entity that thinks to the thoughts or emotions that are its products. Nor is there any gulf between these two: the range is fluid and continuous from one extreme to the other...', p. 68.

¹⁶⁷ Clarke, *Flesh and Spirit*, pp. 73-79. Also noted by Jaeger, *Theology of the Early Greek Philosophers*, 74.

¹⁶⁸ Clarke, *Flesh and Spirit*, pp. 79-90.

¹⁶⁹ Clarke, *Flesh and Spirit*, p. 81.

¹⁷⁰ Clarke, *Flesh and Spirit*, pp. 90-97.

something, and even to experience joy, is understood as a softening, moistening or melting of these fluids in the chest. Conversely, the stiffening or sticking fast of these is understood as stern and unflinching emotion, passionate and deeply felt thought.¹⁷¹ The thoughts of a fool are dispersed as the concentrated fluid is emptied from the breast. A dispirited person is one who has lost what is in his chest.¹⁷²

The Homeric *mind*, so to speak, is to be understood as the activities of the real concrete substances in the chest.¹⁷³ Yet this is not a naïve one-to-one association or identification. Rather, even though ‘the mental apparatus is tied to what is literally and solidly in the chest, it is not limited or constrained by that dependence. And the system is subtle, expressive, and self-consistent in a way that has no parallel in the jumbled and allusive imagery of the mind that characterizes our modern languages’.¹⁷⁴ The mental life of Homeric man, and the life of the organs and fluids in his chest, are so seamlessly united that it is a mistake to seek to differentiate between the two, such as occurs within a modern mind-body dichotomy. For Homer ‘man thinks and lives as a unity in which mental life and the life of the body are one and indivisible’.¹⁷⁵

Once we understand that Homeric man does not possess a mental life set over against a bodily life, but rather consists in an undifferentiated whole, then two important results emerge.¹⁷⁶ Firstly, Homeric man will not *have* a mind — ‘his thought and consciousness are as inseparable a part of his bodily life as are movement and metabolism’.¹⁷⁷ Secondly, the corollary of this is also true. Homeric man will not *have* a body — ‘the thing that English calls “the body” will be exactly coterminous with and identical to the mass of blood, bones, and consciousness that is a human being’.¹⁷⁸ This is confirmed in that Homeric anthropology has no term for what English now designates as ‘body’.¹⁷⁹ In fact to ‘seek for a word for “body” is to ask Homer a wrong and unanswerable question. That a man should have a body makes sense only if he has

¹⁷¹ Clarke, *Flesh and Spirit*, pp. 97-100.

¹⁷² Clarke, *Flesh and Spirit*, pp. 101-106.

¹⁷³ Clarke, *Flesh and Spirit*, pp. 106-109.

¹⁷⁴ Clarke, *Flesh and Spirit*, p. 106.

¹⁷⁵ Clarke, *Flesh and Spirit*, p. 109.

¹⁷⁶ Clarke, *Flesh and Spirit*, pp. 115-119.

¹⁷⁷ Clarke, *Flesh and Spirit*, p. 115.

¹⁷⁸ Clarke, *Flesh and Spirit*, p. 115.

¹⁷⁹ This point was also noted by Bruno Snell, *The Discovery of the Mind*. See, pp. 5-8.

another part to be distinguished from it: soul, mind, and the ghost in the machine... for Homer there is no mental part of man that can be distinguished from the body, it follows now that the body is indistinguishable from the human whole'.¹⁸⁰

From Homer's treatment of what we today call mental or psychological language, emerges the context for the use of the term '*psuchê*'.

The *psuchê* is not some immortal part of man, and death is not a departure of a soul from a body. Rather, its meaning is restricted to the time of death. The *psuchê* has no bearing in regard to personal identity or consciousness during life.¹⁸¹ What are abandoned by the *psuchai* at death, are not *corpses*, but rather the *autoi* — the men themselves. Homeric man does not become divided into two parts at death.¹⁸²

To die is to *breathe one's last*. Hence, death is pictured in Homeric language as the *departure of the thumos*, the loss of breath and life, lost by the dying man.¹⁸³ The loss of the *thumos*, or the dying breath, is closely co-ordinated to the loss of the *psuchê*. To die is also to lose the *psuchê*, in the same way as it is to lose the *thumos*.¹⁸⁴ In some cases, the *psuchê* lost at death, is spoken of as being dissipated, annihilated, or as vanishing into nothingness. Sometimes, when a descent to Hades is envisioned, it is actually the *psuchê* that dissipates, and the man himself that descends.¹⁸⁵ In the loss of breath, a loss of life and consciousness occurs. As such, swooning operates in the same manner.¹⁸⁶ The release of the breath both in death and in swooning is described as a loss of *psuchê*. However, if a recovery is made from a swoon then it is the *thumos*, not the *psuchê*, that is breathed back in. Therefore, *psuchê* is only breath that is lost, and hence is only related to life and consciousness in that they are destroyed at death.¹⁸⁷

¹⁸⁰ Clarke, *Flesh and Spirit*, p. 119.

¹⁸¹ Noted also by Jaeger, *Theology of the Early Greek Philosophers*, p. 74.

¹⁸² Clarke, *Flesh and Spirit*, pp. 129-130.

¹⁸³ Clarke, *Flesh and Spirit*, pp. 130-133.

¹⁸⁴ Clarke, *Flesh and Spirit*, pp. 133-136.

¹⁸⁵ Clarke, *Flesh and Spirit*, pp. 137-138.

¹⁸⁶ Clarke, *Flesh and Spirit*, pp. 139-140.

¹⁸⁷ Clarke, *Flesh and Spirit*, pp. 140-143.

The common ground for words with the *psuch-* root, such as *psuchê*, *psuchros*, and *psucho*, are *coldness*, *breath*, and *blowing*. *Psuchê*, then, can be understood as the ‘gasp of expired breath that is cold, vaporous, and insubstantial’.¹⁸⁸

This was a point also noted, in part, by Bickel, in responding to what he saw as a deficiency in Otto.¹⁸⁹ He reasoned that there must be a way to bridge the gap between *psuchê* associated with the living, and *psuchê* as the shade of the dead in Hades. This bridge, he concluded, must lie in the root etymological meaning of *psuchê* as *breath* or *exhalation*.¹⁹⁰ It is of the same family as ψύχω — *psuchô* (to breathe) and ψυχρός — *psuchros* (cold). This root meaning is evident in that at death one *breathes one’s last* — life departs with the breath. Otto had set himself up as maintaining that for Homer ‘*psuchê*’ had already become an abstract concept, only ever meaning *life*, and he denied that ‘breath’ could ever be proved as a valid reading in the Homeric texts.¹⁹¹ Bickel in turn laboured to show that in Homer the verb ἀποψύχω — *apopsuchô* means to exhale or breathe out, and that the phrase ψύχην καπύσσαι — *psuchên kapussai* should be translated ‘to breathe out his soul’ (*animam efflare*). That the root ψυχ- (*psuch-*) still has something of the sensory feeling of breathing attached to it, even in the time of Homer, is evidenced by such expressions as ‘his *psuchê* flew out of his mouth’ or ‘out of his limbs.’¹⁹²

In contrast to *psuchê*, *thumos* is the warm vital breath associated with life and consciousness. Thus, death can be the release of this warm *thumos*, along with being expressed as a *psuchê* breath — the cold breath of death.¹⁹³ There are therefore two clear senses of *psuchê*. On one hand, the cold dying breath, on the other hand, a shade, image or phantom in Hades. The meaning of ‘*psuchê*’, should not be so much thought of in terms of *what it is*, but *how it acts*. As Clarke states,

The ψυχή lost in death is vaporous, cold and lifeless, diametrically opposed to the warm and vigorous θυμός (or ἀντή) which man had inhaled and taken vigour from during his life; and in similar fashion the ψυχή that lives in Hades is something

¹⁸⁸ Clarke, *Flesh and Spirit*, pp. 147.

¹⁸⁹ Bickel, “Homerischer Seelenglaube”.

¹⁹⁰ Bickel, “Homerischer Seelenglaube”, pp. 232, 258.

¹⁹¹ Otto, *Die Manen*.

¹⁹² See Homer, *Iliad*, 9:409, and *Iliad*, 16:856.

¹⁹³ Clarke, *Flesh and Spirit*, pp. 144-147.

empty of vigour, flitting without strength or substance, partaking of the cold nothingness of drifting air.¹⁹⁴

It is this commonality of lack of life and vigour that allows the same word *psuchê* to be spoken of both as a dying breath and a shade of Hades.¹⁹⁵

For example, in the narrative of the death of Hector and Patroclus, Homer links these two uses of *psuchê* together.¹⁹⁶

He spoke, and as he spoke the end of death closed in upon him, and the soul [i.e. *psuchê*] fluttering free of his limbs went down into Death's house mourning her destiny, leaving youth and manhood behind her.¹⁹⁷

The *psuchê* — the cold breath of death breathed out as the hero expires, now takes on wings, and is translated to the world of myth. There it flies away to be a *psuchê* — a cold and lifeless shade in the realm of Hades.

For the Homeric man, however, the *identity* is still bound up with what we would call the corpse or body. Even though consciousness and life have ceased, the man is still bound up with the body. Yet it is a body that has been seriously diminished in its vital powers. It is enfeebled.¹⁹⁸ Once the corpse has been buried, or mutilated beyond recognition, however, then it is no longer spoken of as the man himself. It is only the shade in Hades that carries this identity.¹⁹⁹

Hades is pictured as directly beneath the earth on which mortal men live.²⁰⁰ To die can be spoken of as being swallowed up by the earth. To go down beneath the soil is to enter into Hades. It follows from this, that the burial, or funeral, is a 'ritualised version of the journey to the afterlife'.²⁰¹ In terms of the man himself, he undergoes his journey to Hades at death. In terms of the social relationship he has with the community, he is gradually transferred to Hades, through the ritual of burial. Clarke states,

... in purely existential terms the experience of death brings man from the mist that falls on the eyes to the gloomy darkness of Hades, but in terms of his continuing

¹⁹⁴ Clarke, *Flesh and Spirit*, p. 148.

¹⁹⁵ Clarke, *Flesh and Spirit*, pp. 147-148.

¹⁹⁶ Clarke, *Flesh and Spirit*, p. 148-151.

¹⁹⁷ Homer, *Iliad*, 16.855-857. Lattimore translation.

¹⁹⁸ Clarke, *Flesh and Spirit*, pp. 157-161.

¹⁹⁹ Clarke, *Flesh and Spirit*, pp. 161-164.

²⁰⁰ Clarke, *Flesh and Spirit*, pp. 178-189.

²⁰¹ Clarke, *Flesh and Spirit*, p. 181.

relationship with his peers he is transferred to a new environment in the shared celebration of the funeral.²⁰²

The burial functions as the symbolic social enactment of the man's descent into Hades.

The unity between the dweller in Hades, and the dead corpse, is further realised in that they are both referred to by the same term '*nekus/nekros*'.²⁰³ The shade in Hades is spoken of as 'a reduced remnant of the dead man, as an empty image of him, and as something that wafts along in the air'.²⁰⁴ The man who undergoes death, is the man who has been reduced to the emptiness and feebleness of the realm of Hades.²⁰⁵ The shade is only a phantom, a mere apparition. As such it can appear and dissipate, like the wind.²⁰⁶

The shade always exhibits the shape and identity of the bodily man, who was laid under the earth.²⁰⁷ The *psuchê* as dying breath and the *psuchê* as the shade of Hades, should not be naively identified. Rather, what unites these two uses of *psuchê* together, is their commonality of a flitting *strengthless* motion.²⁰⁸ When applied to the dying man, *psuchê* is the cold, *strengthless* dying breath, that dissipates in the air. The identity of the man remains with his corpse. When applied to the shade in Hades, *psuchê* speaks of the cold, *strengthless* image.

A clear picture emerges from the Homeric texts, which is that Homeric anthropology knows nothing of a body-soul dualism.²⁰⁹

²⁰² Clarke, *Flesh and Spirit*, p. 183.

²⁰³ Clarke, *Flesh and Spirit*, pp. 190-191.

²⁰⁴ Clarke, *Flesh and Spirit*, p. 194.

²⁰⁵ Clarke, *Flesh and Spirit*, pp. 194-198.

²⁰⁶ Clarke, *Flesh and Spirit*, p. 198-200. Clarke states, '...the common ground between remnant and counterfeit is in the shade's characteristic motion: it flits, it floats, it moves along the air without strength or substance. It is under this aspect that the word $\psi\upsilon\chi\acute{\eta}$ comes into its own: just as in the mortal world this word names the strengthless gasp whose loss was death, so here it names the insubstantial wisp that lives out this shadowy semblance of a life.', p. 199.

²⁰⁷ Clarke, *Flesh and Spirit*, p. 205-207.

²⁰⁸ Clarke, *Flesh and Spirit*, p. 205.

²⁰⁹ As Clarke states the point, 'Since it is not a constituent part of the living man or of the man who died, it makes nonsense to work through the familiar categories of our own culture and picture the wraith as the spirit of man rather than his body: here as elsewhere Homer forbids us to invoke that dichotomy and forces us to understand the wraith in terms of the undivided thinking and bodily whole of the dead man.' In, Clarke, *Flesh and Spirit*, p. 206.

3.5.3 Orphic Body-Soul Dualism

It is not until the archaic age that we discern the beginnings of what appears to be a dualistic anthropology, and this is effected by the rise of Orphism as a strong cultural force. Clarke notes,

We will see that in Greek of the period immediately after Homer [i.e. the archaic age] the word [i.e. *psuchê*] has a very different character, with a range of meaning which serves to associate mental life with life after death in a way that has no parallel in the early epic. Moreover, it will emerge that this semantic change exactly matches religious and cultural innovations that are attested for the same historical period.²¹⁰

The idea of a cycle of rebirth, associated with a *psuchê*, is possibly attested to in the Hesiodic *Catalogue of Women*,²¹¹ dated c. 500 BC. Here the *psuchai* of the heroes, when they die, are separated from their bodies and *carry their identity*, where they reach their immortal re-birth in the Isles of the Blest. This contrasts with the Homeric account of the myth, where the hero bodily avoids death, and is transported to Elysium.²¹² There is personal identity through a life — death — reincarnation, in the *Catalogue of Women*, by the means of a transmitted *disembodied soul*.²¹³

The earliest, and clearest, references to a body-soul duality, however, are in Pindar, writing some two hundred years after Homer. He distinguishes between a body (*sôma*) and an immortal image (*aionos eidolon*).

And all men's bodies follow the call
Of overpowering death.
And yet there still will linger behind
A living image of life,
For this alone has come from the gods.
It sleeps while the members are active;
But to those who sleep themselves
It reveals in myriad visions
The fateful approach

²¹⁰ Clarke, *Flesh and Spirit*, p. 287. Clarke further attributes the shift toward a dualistic anthropology, and a concomitant shift in the meaning of the word '*psuchê*', to the, 'esoteric doctrines associated with Orphic or Pythagorean teachings', p. 288.

²¹¹ *Frag.* 204. Merkelbach, R. and West, M.L. (eds.), *Fragmenta Selecta*.

²¹² Homer, *Odyssey*, iv, 561-565. E.V. and D.C.H. Rieu Translation. 'And now, Menelaus, favourite of Zeus, hear your own destiny. It is not your fate to die in Argos where the horses graze. Instead, the immortals will send you to the Elysian Fields at the world's end, to join auburn-haired Rhadamanthus in the land where living is made easy for mankind...'

²¹³ For a fuller discussion of this, see, Clarke, *Flesh and Spirit*, pp. 291-293.

Of adversities or delights.²¹⁴

Jaeger, Clarke, and Cornford, all identify the influence of Orphism upon Pindar.²¹⁵

Rohde mistakenly relied upon the Orphic influenced poetry of Pindar, in order to support his thesis concerning Homeric anthropology, of a disembodied shade-*psuchê* that dwelt as a double within the person when they were alive. This shade-*psuchê* had no role to play in the waking state of the individual, but operated in the dream-activity of sleep, which Rohde took as analogous to the release of *psuchê* from the body at death.²¹⁶ Homer himself, however, never speaks of the presence of such a double *psuchê*-ego housed in the body during life.

Rohde was rightly criticised by Otto, who in conducting his own careful analysis of dreams in Homer, concluded that Rohde's position was untenable. A dream, in Homer, is always an apparition that comes to the sleeper. Although the term *eidolon* (image) is sometimes predicated to the dream-apparition, Homer, unlike Pindar, never applies the term to the *psuchê* as the dream-organ. Rohde's animistic theory of the *psuchê* as a double-ego, passive in man's waking conscious existence, and active in man's sleep and death as a shade in Hades, was roundly rejected.

Post-Homeric archaic poetry, even prior to Pindar, reveals subtle shifts in the meaning of '*psuchê*', to involve more of the concept of a personal identity, thought, and

²¹⁴ Pindar, *frag.* 131. Translation by Jaeger, *Theology of the Early Greek Philosophers*, p. 75. Compare with the translation of James Adam (adopted by Cornford), 'The body of all men is subject to all-powerful death, but alive there yet remains an image of the living man; for that alone is from the gods. It sleeps when the limbs are active, but to them that sleep in many a dream it revealeth an award of joy or sorrow drawing near.' In, Cornford, *Greek Religious Thought*, p. 64.

²¹⁵ Jaeger states that this is the, 'first appearance of a new and extremely influential religious conception of the soul's nature'. In, Jaeger, *Theology of the Early Greek Philosophers*, p. 86. He further notes that 'Wilamowitz [In Wilamowitz, *Pindar*. Berlin. 1922, pp. 248-252] rightly observes that it was not necessary for Pindar to be initiated in order to be able to describe Orphic eschatology as he does. But Wilamowitz seems to underrate the impression which that faith must have made on the poet to enable him to write his verses'. In, Jaeger, *Theology of the Early Greek Philosophers*, n. 43, p. 223. Clarke states that, 'it turns out that in surviving Greek the earliest unmistakable statements that the human body contains a soul are made by Pindar, in passages which almost certainly betray the influence of Orphic teaching or some kindred body of doctrine.' In, Clarke, *Flesh and Spirit*, p. 294. Cornford notes regarding Pindar, 'Orphic influence is traceable in the doctrines of reincarnation, of a judgement of the dead and reward and punishment between incarnations, and of an escape of the soul after three virtuous lives to the Islands of the Blest.' In, Cornford, *Greek Religious Thought*, p. 62.

²¹⁶ Rohde, *Psychê*. See, Jaeger, *Theology of the Early Greek Philosophers*, pp. 73ff, for a discussion of this.

consciousness. These changes in the use of the word correspond to the changes in Greek culture initiated by the Orphic religious movement.²¹⁷

Archilochus, Solon, and Theognis use '*psuchê*' not as *life that is lost*, but as *life that is held and preserved*, with no risk of loss.²¹⁸ For the military Tyrtaeus, to regard one's *psuchê* is tantamount to selfishness. The coward loves his *psuchê*. Here the *thumos* is the desiring of violent action, and the *psuchê* is *life enjoyed and reflected upon*.²¹⁹

For the archaic poets, '*psuchê*' can now be translated as 'life', with all the vitality, passion, pleasures, and consciousness that this involves. The *psuchê* is now the centre of man's life. It is the core of reflection, self-awareness, and consciousness. It takes on the idea of the essence of a human.²²⁰ '*Psuchê*' has become a fully-fledged member of the '*thumos*' family of words. That is to say, it belongs alongside the group of words that deal with what we today call the human consciousness.

Once the *psuchê* had been identified with the consciousness, it was possible to develop a more explicit eschatology regarding the separation of this newly conceived *psuchê*-soul (consciousness) from the body. This took the form of metempsychosis, or the transmigration of the soul from one body to another at death.

The earliest and most perspicuous texts that set forth this idea are once again from Pindar, who takes the *psuchê* to be the core of passion and emotion, the core of man himself. One's *psuchê* is tantamount to oneself.²²¹ In his Olympian odes we see this idea of metempsychosis being expressed.

Now wealth that is beautiful by deeds of prowess brings opportunity for many things, setting the thoughts of the heart upon high endeavour; it is a clear-shining star, a true beacon to man. And if, possessing wealth, a man knows what shall be hereafter, that the lawless spirits among the dead forthwith are punished here on earth, while the sins committed in this realm of Zeus are called to account beneath the earth by One that gives judgement with harsh and binding sentence; —
And the good, where their sun shines by day, and day and night are always equal, receive their sustenance without toil, vexing not the earth with the strength of their

²¹⁷ As Clarke states it, '...the range of meaning of $\psi\upsilon\chi\acute{\eta}$ in this period corresponds in miniature to the ideas of the soul that were writ large in esoteric religious belief and philosophical doctrine at the same stage of Greek history.' In, Clarke, *Flesh and Spirit*, p. 295.

²¹⁸ Clarke, *Flesh and Spirit*, pp. 296-300.

²¹⁹ Clarke, *Flesh and Spirit*, pp. 297-298.

²²⁰ Clarke, *Flesh and Spirit*, pp. 300-303.

²²¹ Clarke, *Flesh and Spirit*, pp. 305-312.

hands, nor the waters of the sea, for a bare livelihood; but in presence of gods high in honour, whoso took delight in keeping oaths has his portion in a life free from tears; while the others endure pain that no eye can look upon.

And all they that, for three lives in either world, have been steadfast to keep their soul from all wrong-doing, travel by the highway of Zeus to the Tower of Cronos, where the Ocean airs breathe about the Islands of the Blest. There are flowers of burning gold, some on land on glorious trees and others that the water feeds, whereof they twine garlands for their hands and wreaths, by the just will of Rhadamanthys, who sits, prepared for judgement, beside the great Father, the husband of Rhea, whose throne is exalted above all. And among these are numbered Peleus and Cadmus; and thither was Achilles borne by his mother when she had moved the heart of Zeus by prayers, Achilles who cast down Hector, the invincible, the unshaken pillar of Troy, and gave to death Cynos and Memnon, the Ethiopian son of the Dawn.²²²

In this passage, it is only those who manage to keep their soul from wrongdoing for *three lives* or three incarnations, who can be set free from the cycle of transmigration to enjoy everlasting bliss. Plato also alludes to this Orphic theme of three incarnations.²²³

In another fragment of Pindar we read,

But as for those from whom Persephone shall exact the penalty of the primal woe, in the ninth year she gives up again their souls to the sunlight in the world above. From these come noble knights and men swift in strength and highest in wisdom, and for all time to come men call them pure heroes.²²⁴

Once again, we find souls being reincarnated into a new body. Those souls that have paid the penalty for some primeval sin are reincarnated as the noble knights, and swift men.

This new Orphic eschatological outlook was accompanied by a very specific βίος — *bios* or way of life. This involved a life of purity, expressed by dietary restrictions, and ritual cleansing. By participating in this way of life, the soul could be best prepared to face its future fate. No longer does the adherent to this new religious outlook find rest in this life, rather he is constantly looking to, and preparing for, something transcendent of his earthly existence. As Jaeger states,

²²² Pindar, *Olympian* ii, 53. From, Cornford, *Greek Religious Thought*, pp. 62-63. As previously noted, Cornford states that, 'This ode was written for Theron, tyrant of Agrigento (Sicily), in 476 B.C. Orphic influence is traceable in the doctrines of reincarnation, of a judgement of the dead and reward and punishment between incarnations, and of an escape of the soul after three virtuous lives to the Islands of the Blest.'

²²³ See, Plato, *Phaedrus*, 248e – 249a. See also, Guthrie, *Orpheus*, p. 184.

²²⁴ Pindar, *Dirges*, frag. 133. From, Cornford, *Greek Religious Thought*, p. 64. Regarding this passage Cornford notes, 'The soul absolved from the primal sin is incarnate for the last time in the highest form of humanity and then becomes divine.'

His soul, which has come from a higher and diviner sphere, is a transient guest in the house of the body. Only in dreams and in the hour of death, when released by the body, is it ever completely itself.²²⁵

For Jaeger, it is this Orphic concept of the soul that lays the anthropological foundation for the later philosophy of both Plato and Aristotle²²⁶. He also maintains it is to be found influencing the more immediate Presocratic philosophers, and indeed Socrates himself.²²⁷ I shall argue this in more detail in Chapter Four.

Given the transformation of *psuchê* within a dualistic Orphic anthropology, to mean the core of man, we would likewise expect the word '*sôma*' (body) to take on new meaning, to be used as something over and against the *psuchê*. This is indeed what we find in Pindar. He contrasts the immortality of the soul with the mortality of the body.²²⁸ He speaks of the *sômata* (i.e. bodies) of defeated wrestlers,²²⁹ and the *sôma* (i.e. body) of a living baby.²³⁰ Even prior to Pindar, there is clear evidence of *sôma* being used in this fashion. Archilochus describes himself as embracing a girl's body (*sôma*).²³¹ Theognis complains that Poverty disgraces his body (*sôma*) and mind (*noos*).²³²

²²⁵ Jaeger, *Theology of the Early Greek Philosophers*, p. 87.

²²⁶ This thesis will, of course, develop this relationship with respect to Plato. Regarding Aristotle, however, it is interesting to note that Jaeger cites a fragment that he takes to be the expression of an early (and still somewhat Platonic) Aristotle. This fragment, a report concerning Aristotle by Sextus Empiricus, in light of the above analysis shows a clear line of thought in common with the earlier Orphic conceptions. Both a separation of conscious soul from body is presumed, as well as the nature of the soul coming into its own during sleep. Sextus' report sounds very much like Pindar's *frag.* 131, quoted above, 'Aristotle used to say that men's concept of god sprang from two sources – the experiences of the soul and the phenomena of the heavens. From the experiences of the soul, because of its inspiration and its prophetic power in dreams. For, he says, when the soul gets by itself in sleep it then assumes its nature and foresees and foretells the future. The soul is also in such a condition when it is severed from the body at death. At all events, he accepts even Homer as having observed this; for he has represented Patroclus, in the moment of his death, as foretelling the death of Hector, and Hector as foretelling the end of Achilles. It was from such events, he says, that men came to suspect the existence of something divine, of something in itself akin to the soul and of all things most knowledgeable...' From, Sextus Empiricus, *Adversus Mathematicos*, IX 20-23 = Aristotle, *frag.* 10.

²²⁷ Jaeger cites Pythagoras, Parmenides, Heraclitus, Empedocles, and Socrates, as all having philosophical conceptions that would not have historically occurred, had it not been for the new anthropological and eschatological impetus of the Orphics. See, Jaeger, *Theology of the Early Greek Philosophers*, pp. 88-89.

²²⁸ See, Pindar, *Frag.* 94a, 'Humans have immortal days, but their body is mortal'. Race translation.

²²⁹ See, Pindar, *Pythian*, 8. 81-82, 'And upon four bodies [σωμάτεσσι – *sômatessi*] you fell from above with hostile intent'. Race translation.

²³⁰ See, Pindar, *Olympian*, 6. 55-56, '... while his tender body [σῶμα – *sôma*] was bathed by the golden and purple rays of violets'. Race translation.

²³¹ See, Archilochus, *Frag.* 196a. In, West (ed.), *Iambi et Elegi Graeci*, 2nd ed.

²³² See, Theognis, *Elegies*, 649-650, 'O wretched Poverty, why do you sit Upon my shoulders, bringing me disgrace In mind and body?' Wender translation.

It is only in the post-Homeric period that we find the *psuchê* identified with the consciousness. This identity was primarily effected through the influence of the Orphic mysteries, with their new myth regarding the dual nature of mankind.

Dodds, along with Clarke, also recognised that the word '*psuchê*' underwent a semantic shift from 'the dying breath' to the 'living self'.²³³ It was associated with *thumos*, and even with *sôma*.

It was here that the new religious pattern made its fateful contribution: by crediting man with an occult self of divine origin, and thus setting soul and body at odds, it introduced into European culture a new interpretation of human existence...²³⁴

Dodds wished to source the origin of this new dualistic anthropological belief in the shamanistic cultures surrounding Greece. He proposed that,

...in Scythia, and probably also in Thrace, the Greeks had come into contact with peoples who, as the Swiss scholar Meuli has shown, were influenced by this shamanistic culture.

...it seems reasonable to conclude that the opening of the Black Sea to Greek trade and colonisation in the seventh century, which introduced the Greeks for the first time to a culture based on shamanism... These new elements were, I think, acceptable to the Greek mind because they answered to the needs of the time, as Dionysiac religion had done earlier. Religious experience of the shamanistic type is individual, not collective... And it is a reasonable further guess that these new traits had some influence on the new and revolutionary conception of the relation between body and soul which appears at the end of the Archaic Age.²³⁵

It was Orphism that helped establish this shamanistic religiosity into Greece. Dodds saw the figure of Orpheus himself clearly as an archetypal shaman.

Orpheus' home is in Thrace, and in Thrace he is the worshipper or companion of a god whom the Greeks identified with Apollo. He combines the professions of poet, magician, religious teacher, and oracle-giver. Like certain legendary shamans in Siberia, he can by his music summon birds and beasts to listen to him. Like shamans everywhere, he pays a visit to the underworld, and his motive is one very common among shamans — to recover a stolen soul... I conclude that Orpheus is a Thracian figure of much the same kind as Zalmoxis — a mythical shaman or prototype of shamans.²³⁶

²³³ In, Dodds, *The Greeks and the Irrational*. In particular see Ch.5, "The Greek Shamans and the Origin of Puritanism".

²³⁴ Dodds, *The Greeks and the Irrational*, p. 139.

²³⁵ Dodds, *The Greeks and the Irrational*, pp. 141, 142.

²³⁶ Dodds, *The Greeks and the Irrational*, p. 147.

Bremmer took issue with Dodds over this thesis of the influence of shamanistic cultures in archaic Greece.²³⁷ He argued that these cultural forms were *already* present in Homeric Greece, and were merely further developed in the archaic age.²³⁸

In order to substantiate such a thesis, Bremmer relied upon the work of the Sanskrit scholar, Ernst Arbman²³⁹. Arbman analysed the various soul (*atman*, *purusa*) beliefs from Vedic sources in India. Arbman distinguished between two types of soul, what he called a *body-soul* that imparts life and consciousness, and a *free-soul* that maintains the individual personality. The free-soul is passive during consciousness and active during unconsciousness. Body-souls are active during consciousness. The body-soul can be divided into parts, usually two, the life-soul that is often identified with the breath, and the ego-soul that was primarily the consciousness. Arbman argued that the earlier Vedic beliefs did not see the body-soul and the free-soul as a unity. Later, there was a shift to identify these two together, and the *atman* (or free-soul) took on psychological aspects of the body-soul.²⁴⁰

Bremmer appropriated Arbman's thesis of anthropological development as a framework to interpret the ancient Greek sources. He argued that originally *psuchê* was understood as a free-soul, and terms such as *thumos*, *noos*, and *menos*, were aspects of the body-soul. He then argued that Greek anthropological developments took the same shape as Vedic, and the *psuchê* (free-soul) became identified with the body-soul (*thumos*, *noos*, *menos*).²⁴¹

Bremmer's thesis, however, must be rejected in that he uncritically moulded the Greek sources to fit into his preconceived Arbman model. Clarke rightly criticised Bremmer on this account.

²³⁷ In, Bremmer, *The Early Greek Concept of the Soul*.

²³⁸ Jaeger also rejected the view (likewise held by Otto Kern) that this new post-Homeric dualistic conception of the *psuchê* was a foreign oriental intrusion into Homeric Greece. Jaeger maintained, rather, that the pre-Homeric conception of the *psuchê* contained within it a 'native tendency to widen its meaning to include something like our present idea of the soul'. In, Jaeger, *Theology of the Early Greek Philosophers*, p. 83.

²³⁹ Arbman, Ernst. "Untersuchungen zur primitiven Seelenvorstellungen mit besonderer Rücksicht auf Indien, I".

²⁴⁰ Bremmer, *The Early Greek Concept of the Soul*, p. 9.

²⁴¹ Bremmer, *The Early Greek Concept of the Soul*, p. 11.

Instead of attempting to fit Homeric concepts into the categories provided by contemporary Western ideas, Bremmer imposes a paradigm lifted from Ernst Arberman's paradigmatic scheme of primitive soul-belief based on the Vedas. Putting all his trust in the comparative method Bremmer proceeds on the assumption that early Greek beliefs can be mapped onto Arberman's model, according to which the primitive believes that man is equipped with 'a free soul representing the individuality of a person and the body-souls endowing a person with life and consciousness.' The problem is that even if the world-pictures of early Greek epic and of the Vedic hymns share a common ancestor in the same way as their two languages, the archetype would lie so far back that we could not assume in advance that a significant structure is shared by the cultures embodied in the existing literatures. To map the one onto the other is to confuse the ancestry of ideas with the shape they actually take in a living system.²⁴²

In the light of Clarke's own analysis of the Homeric source material, Bremmer's account simply fails to do justice to the sources on their own terms.

Regarding the specifically Orphic testimonia, the discovery in 1962 of the late 4th c. BC Derveni papyrus, provides some indication regarding the Orphic transformation of 'psuchê'. The fragments from the opening sections of the papyrus seem to suggest that ψυχαί — *psuchai* (souls) enter Hades, and become known as δαίμονες — *daimones* (demi-gods) or Ἐρινύες — *Erinues* (Furies, avenging gods).²⁴³ The gold tablet from Hipponium, c. 465 BC, speaks of the reincarnation of a dead man's *psuchê* in Hades.²⁴⁴

West indicates that the Orphic Rhapsodic theogony involves an account of the reincarnation of the soul.

Zeus now creates animals, birds, and a foolish human race that does not know good and evil. But though their bodies are mortal, their souls are immortal, drawn from the air, and passing through a series of human and animal bodies. When a soul leaves an animal's body, it floats around until another one catches it off the wind; but when it leaves a human body, Hermes leads it below the earth. There it is judged: the good have the better fate, going to the meadow by Acheron and the misty lake, while the wicked are led to Tartarus and the plain of Cocytus. The Styx is also to be found there, a branch of Oceanus and one of its ten parts. A god that swears falsely upon it is punished in Tartarus for nine thousand years. Souls spend three hundred years in the other world and then are reborn. But their aim is to achieve release from the round of misery.²⁴⁵

²⁴² Clarke, *Flesh and Spirit*, pp. 43-44.

²⁴³ For a discussion on this see, Clarke, *Flesh and Spirit*, p. 290.

²⁴⁴ See, Clarke, *Flesh and Spirit*, p. 290, n. 15.

²⁴⁵ West, *Orphic Poems*, p. 75.

These details, West argues, reach back in their origins to the Protogonos theogony, dating from Ionia c. 500 BC.²⁴⁶

This testimony is in part also confirmed by Aristotle, who states,

... the view expressed in the 'Orphic' poems: there it is said that the soul comes in from the whole when breathing takes place, being borne in upon the winds.²⁴⁷

The Orphic Gold Plates from Petelia, Italy (4th – 3rd c. BC), Eleuthernai, Crete (2nd c. BC), and Thurii, Italy (4th – 3rd c. BC), all contain instructions for the soul regarding its journey in Hades.²⁴⁸ The Petelia and Eleuthernai Plates suggest that man is a dual being, both a son of the earth, and a son of the starry heaven, also emphasising the lineage of man in terms of the Orphic theogonies, from Ge and Uranos.

You must say, 'I am the child of Ge (Earth) and of starry Ouranos (Heaven); this you yourselves also know...'

I am dry with thirst and am perishing.

Come, drink, I pray, from the ever-flowing spring on the right, where the cypress is.

Who are you, and whence?

I am the son of Earth and starry Heaven.²⁴⁹

The Thurii Plates primarily speak of man as really being an immortal god — a divine soul or spirit, originating from the sun and stars of the heavens. His incarnation as a human to earth was due to his being overcome by the other gods (Fate in particular), in order to pay a penalty for his unjust deeds. At death, his soul descends to Hades, but he hopes to be released and exalted back to the heavens once again.

I come from the pure, O pure Queen of the earthly ones, Eucles, Eubouleus, and ye other immortal gods! I too claim to be of your blessed race, but Fate and other immortal gods conquered me, (*and sent*) the star-smiting thunder. And I flew out from the hard and deeply-grievous circle, and stepped on to the crown with my swift

²⁴⁶ West, *Orphic Poems*, pp. 99-101. Also see, Clarke, *Flesh and Spirit*, pp. 290, 310, for a discussion of this.

²⁴⁷ Aristotle, *De Anima*, 410b29. Regarding Aristotle's own testimony concerning Orpheus, we have rather mixed reports. According to Cicero, 'Aristotle says that the poet Orpheus never existed' (Aristotle, *frag.* 7 = Cicero, *de natura deorum* I xxxviii 107). However, according to Philoponus, Aristotle considered certain poems to be the opinions of Orpheus, thus suggesting the existence of an historical Orpheus, even though the poems were versified by Onomacritus, 'Aristotle says "so-called" Because the poems are thought not to be the work of Orpheus, as he himself says in the books *On Philosophy*: the opinions are those of Orpheus, but they say that Onomacritus set them to verse.' (Aristotle, *frag.* 7 = Philoponus, *Commentarius in de Anima* 186. 24-26).

²⁴⁸ Orpheus, 1 B 17, 17a, 18, 19, 19a, 20 DK. See also, Guthrie, *Orpheus*, pp. 172-174.

²⁴⁹ Orpheus, 1 B 17, 17a DK.

feet, and slipped into the bosom of the Mistress, the Queen of the Underworld. And I stepped out from the crown with my swift feet.

‘Happy and blessed one, you shall be a god instead of a mortal.’

I have fallen as a kid into milk.

And I have paid the penalty for unjust deeds, whether Fate conquered me ... with the thunderbolt and the lightning flash. Now a suppliant I come to noble Persephone [i.e. wife of Hades, Queen of the Underworld], that she may be kind and send me to the seats of the pure.

But whenever a soul leaves the light of the sun — enter on the right where one must if one has kept all (*the laws*) well and truly. Rejoice at the experience! This you have never before experienced: you have become a god instead of a man. You have fallen as a kid into milk. Hail, hail, as you travel on the right, through the holy meadow and groves of Persephone!²⁵⁰

Philolaus of Tarentum (b. c. 480 BC), testifies that the ancient theologians, of whom he undoubtedly has the Orphics in mind, speak of the soul as entombed in the body, in order to be punished.

The ancient theologians and seers also bear witness that because of certain punishments the soul is yoked to the body and buried in it as in a tomb.²⁵¹

Plato himself confirms the view that the Orphics held the body to be the tomb of the soul.

For some say that the body is the grave (σῆμα) of the soul which may be thought to be buried in our present life; or again the index of the soul, because the soul gives indications to (σημαίνει) the body; probably the Orphic poets were the inventors of the name, and they were under the impression that the soul is suffering the punishment of sin, and that the body is an enclosure or prison in which the soul is incarcerated, kept safe (σῶμα, σώζεται), as the name σῶμα implies, until the penalty is paid; according to this view, not even a letter of the word need be changed.²⁵²

Well, life as you describe it is a strange affair. I should not be surprised, you know, if Euripides was right when he said, ‘Who knows, if life be death, and death be life?’ And perhaps we are actually dead, for I once heard one of our wise men say that we are now dead, and that our body is a tomb, and that that part of the soul in which dwell the desires is of a nature to be swayed and to shift to and fro.²⁵³

These testimonia confirm to us, then, the origin of body-soul dualism within the Orphic movement.

²⁵⁰ Orpheus, 1 B 18, 19, 20 DK.

²⁵¹ Philolaus, 44 B 14 DK.

²⁵² Plato, *Cratylus*, 400b-c.

²⁵³ Plato, *Gorgias*, 492e – 493a.

3.5.4 The Immortality of the Soul

The development of the idea of immortality is bound up in ancient Greece with the development of the idea of the soul. As previously noted, the Homeric shade in Hades was a shadowy existence, 'without conscious life or mental activity'.²⁵⁴ Jaeger maintains that in the Homeric period, the only thing that truly survived death was a man's *name* — kept alive by his fame. In this way the valiant and noble were separated from the mere mass of common mortals, who had no fame. The noble left alive the glorious memory of their life, which was *immortalised* by the songs of the ἀοιδοί — *aoidoi* (the bards). The distinction between heroes and gods is slim, and man achieved for himself an eternal glory by his valiant deeds. In this period,

Poetry is man's immortality, as it were, for it is essentially praise, as Homer, Hesiod, and their successors tell us explicitly; and the strongest motive for the greatest heroic effort of an individual is that it will make him survive in song so as to be known to future generations.²⁵⁵

Immortality, or ἀθανασία — *athanasia*, is explicitly mentioned for the first time in the martial elegies of the Spartan Tyrtaeus (7th c. BC). Here immortality is promised to those warriors who have died fighting for their country. Although the hero is under the earth, paradoxically he is also immortalised.

Such a man is lamented alike by the young and the elders
And all his city goes into mourning and grieves for his loss.
His tomb and children are notable among men,
and his children's children, and his race thereafter;
His noble memory is not destroyed nor his name,
but he is immortal, though he lies beneath the earth,
whomever, excelling in valour, standing fast, and
fighting land and children, raging Ares destroys.²⁵⁶

A subtle shift has occurred from the Homeric conception. The polis (or city-state) has taken over the function of the Homeric poet, in immortalising the hero. These warriors receive a public burial and are revered by the entire community. The men in their *symposia* now recount the story of the deeds of the immortal heroes. Jaeger states it in this way,

²⁵⁴ Jaeger, "The Greek Concept of Immortality", p. 99.

²⁵⁵ Jaeger, "The Greek Concept of Immortality", p. 100.

²⁵⁶ Tyrtaeus, *frag.* 12. Lattimore translation.

The individual is socialized as a member of the *polis*, but, in an ideal sense, he maintains and forever preserves his individuality by giving up his life to the community... it assures him of the imperishable value of his personality, which is invested in his name and fame.²⁵⁷

This political conception of immortality was still retained in the period of the Athenian democracy, as may be evidenced by the speeches of Pericles. As Plutarch informs us,

Stesimbrotus tells us that Pericles, pronouncing a panegyric over those who had fallen at Samos, said that they had become immortal like the gods. "For, though we do not see the gods themselves, yet from the honours they enjoy and the good things they bestow we infer their immortality. The same is true also of those who die for their country."²⁵⁸

The ideal of immortality, however, was radically transformed within the Orphic tradition. Orphism maintained a deep concern for man's inner life, and, as above noted, viewed man himself as a dual being, with his true essence being his divine soul. The soul was really one of the immortal gods, and was only located in the body in order that it may atone for a primeval crime.

The second Olympian Ode of Pindar, quoted above, speaks of an other-worldly immortality of the soul that is innocent. It dwells in post-mortem bliss, in the Isles of the Blessed. It is therefore the *psuchê*-soul that has, in Orphic lore, taken the place of the Homeric hero. The *psuchê*-soul strives with what is worldly through a series of transmigrations into bodies. If it is successful in its dramatic quest, it is finally liberated, and achieves immortality among the gods, returning back to its original Divine condition.

3.6 The Cultural Importance of Orphism

We have seen that a great shift in both religious outlook and anthropology occurred in ancient Greece through the advent of the Orphic movement. These great Orphic themes will form the basis for the remainder of this thesis.

The philosophy of the Presocratic philosophers synthesised and philosophically transformed many elements of this Orphic religiosity. In particular, the Pythagorean

²⁵⁷ Jaeger, "The Greek Concept of Immortality", p. 103.

²⁵⁸ Plutarch, *Pericles* 8. From, Cornford, *Greek Religious Thought*, p. 235.

tradition embodied the anthropological and eschatological values of Orphism. Plato himself wove these themes tightly into the structure of his own philosophy, and most especially, into the role he assigned to mathematics. The shape of Greek philosophy, and indeed, later Hellenistic culture, cannot be rightly understood or appreciated, aside from the impelling force of Orphism

But all this, of course, is to anticipate the argument contained in the remainder of Part One, and in Part Two of this thesis. Suffice it to say here, on the basis of this forthcoming discussion, that the importance of these Orphic themes cannot be overstated, with regard to both the development of Greek philosophy, and in particular, the role of mathematics within the philosophy of Plato.

Part One: Literacy, and the Rise of the Orphic Philosopher

Chapter Four: The Orphic Philosopher

Plato 'is full of echoes of the writings of Orpheus'

— Olympiodorus, *On the Phaedo*, 70c

In this chapter I examine how Orphic doctrine was philosophically transformed in the Presocratic philosophers and especially in Plato. Pythagoreanism, in particular, was closely connected to the religious mystery of Orphism, and essentially expressed Orphism as a philosophical system.

Music (*mousikê*), the art of the singing bard, functioned as a crucial element within Orphism. Within Pythagoreanism this became theoretically expressed as a system of harmony and mathematics. The philosopher-bard now sang with the voice of the logos (*reason*), using as his instrument the mathematical harmony (*ratio*) of the universe.

In the philosophy of Plato, we discover the Orphic synthesis of Apollo and Dionysus transformed into the philosophical synthesis of Being and Becoming, or Changelessness and Change. The Orphic anthropological shift of human beings as immortal divine souls entombed in mortal bodies, was transformed into the immortal *rational* soul (*Being*) entombed in the mortal irrational body (*Becoming*).

For Plato, philosophy was understood as the religious quest to free the soul from its tainted condition in the body, and to reunify it with the Divine reality (*Being*) behind experience.

Plato championed and perfected in his own unique way the Orphic-Pythagorean ideal.

4.1 The Orphic Bard Turns Philosopher

Orphism, in Ancient Greece, did not remain a quaint mystic religious alternative to the official Olympic piety of the polis. Its advent was concomitant with the advent of the new literate-philosophical cultural form that arose through the development of alphabetic literacy. This new theoretical disposition of thought blended itself together with Orphism, to give rise to a philosophically monotheistic and rationalistic worldview.

The Orphic view of man as a distinctively dual being, i.e. a combination of body and soul substances, was transformed by the new theoretical rational disposition. The soul, the essence of a man, became identified with the faculty of theoretical thought, or *logos* (reason), and *noos* (mind). It was conceived of as a spark of divinity within man. The soul is *philosophically* entombed in a body, that is to say, it is given to perceive things as a plurality, and as individuated particulars, through its bodily sense experience. Humans must purify (*katharsis*) their soul (or reason), by attuning and re-identifying their own immanent reason (*logos*) to the Divine Reason (the universal *logos* or *noos*). To be liberated from its philosophical entombment, the soul must merge with the Divine. To this end it must comprehend the All, as a rationally systematised unified whole.

Among the Presocratics, it was Pythagoreanism in particular that became closely identified and aligned with this new Orphic religiosity. The Pythagorean emphasis upon the theoretical science of music parallels the Orphic emphasis on the bard. Within the philosophical tradition in general, the *logos* (reasoned account) replaces the *mythos* (mythic-storied account). More specifically within Pythagoreanism, the use of musical accompaniment in order to tell a myth, is replaced by the use of harmony and number, the theoretical principles behind music, in order to tell the *logos* (reasoned account) of the cosmos.

The philosophy of Plato is firmly grounded within this Orphic-Pythagorean tradition. So much so, in fact, that I will here present Plato as having championed the Orphic-philosophical cultural form, pioneered by the Pythagoreans, just as in Chapter Two, I presented Plato as having championed the new literate-philosophical cultural form pioneered by the Presocratics.

Plato adopts the Orphic Apollonian-Dionysian synthesis in his synthesis of Being-Becoming. He also adopts the Orphic-Pythagorean anthropology in identifying the essence of humans as an immaterial rational soul. He appropriates the Orphic eschatology in that he recognises the task of humans as liberating the rational soul from its bondage to the earthly body of Becoming. This is to be achieved through the Orphic purification rites (*katharsis*), but now transformed into the study of the theoretical sciences and philosophy. He also appropriates the Orphic theogony (i.e. the generation of the gods), in his account of the cosmos as generated from the Divine reason, through Being. Finally, and for the purposes of this thesis most importantly, Plato adopts and intensifies the Pythagorean tradition, that through mathematics what we may describe as an *Orphic philosophy* may be realised. This, we will later see, significantly conditions how we can best understand the role of mathematics within the philosophy of Plato.

4.2 Presocratic Orphism

Much of the philosophy of the Presocratics would not have been possible had it not been for the ideas introduced into ancient Greek thought through Orphism.²⁵⁹

Already in the early Presocratics, there appears evidence of a shift in the use of the word '*psuchê*', along Orphic lines. Anaximenes (*fl. c. 545 BC*) states,

As our soul [*psuchê*], being air, holds us together and controls us, so do breath [*pneuma*] and air surround the whole cosmos.²⁶⁰

Psuchê here, is certainly something other than the cold dying breath. It is the very principle which binds us, and the cosmos, together. Air, breath, and life are linked closely together. Anaximenes identifies *psuchê*, as air, with the role of the Divine.

²⁵⁹ Jaeger cites Pythagoras, Parmenides, Heraclitus, Empedocles, and Socrates, as all having possessed items in their philosophy that would not have historically occurred, had it not been for the new anthropological and eschatological impetus of the Orphics. See, Jaeger, *Theology of the Early Greek Philosophers*, pp. 88-89.

²⁶⁰ Anaximenes, 13 B 2 DK = Aetius, 1.3.4. It should, however, be noted that there is some debate over the extent to which the ideas and terminology expressed here can be attributed to Anaximenes. Kirk, Raven, and Schofield, note that this sentence is often thought to be a direct quotation from Anaximenes by Aetius. Doubt is cast upon this, however, in that the sentence is not in Ionic, and that the word *συγκρατεῖ* – *sunkratei* (i.e. 'control and hold together'), would not have been used by Anaximenes. Nevertheless, the sentence is thought to reproduce something of Anaximenes' own statement. See, Kirk, Raven, and Schofield, *The Presocratic Philosophers*, p. 158-162.

Anaximenes determined that air is a god and that it comes to be and is without measure, infinite and always in motion.²⁶¹

It forms the very ground of all Becoming,

Anaximenes ... said that the principle is unlimited [boundless] air, out of which come to be things that are coming to be, things that have come to be, and things that will be ...²⁶²

Jaeger notes that when Anaximenes equated *psuchê* with air, it was removed from the world of sense-experience, and was conceived of as the divine ground, the source of all Becoming, including both life and consciousness. From this perspective death functions as the 'return of the individual to the primal ground and his entry into new forms'.²⁶³

The testimonies concerning Thales (*fl.* c. 585 BC) also confirm that the early Milesians identified the soul with the ground of cosmic Becoming. Soul is self-movement; it constitutes the principle from which the cosmos derives its motion.

Some declared that it [the soul] is mixed in the whole [universe], and perhaps this is why Thales thought all things are full of gods.

From what has been related about him, it seems that Thales, too, supposed that the soul was something that produced motion, if indeed he said that the magnet has soul, because it moves iron.²⁶⁴

Guthrie recognises a possible parallel between the cosmic structure of Anaximander, and that of the Orphic theogonies. The Orphic genealogy of Night, cosmic egg, Eros-Phanes with Heaven and Earth (the two halves of the egg), followed by the gods and men, may be paralleled with Anaximander's Apeiron, Gonimon (generative seed), Hot – Moist – Cold, followed by the living creatures. Guthrie pictures this as,

²⁶¹ Anaximenes, 13 A 10 DK = Cicero, *On the nature of the Gods*, 1.10.26.

²⁶² Anaximenes, 13 A 7 DK = Hippolytus, *Refutation*, 1.7.1-3.

²⁶³ Jaeger, *Theology of the Early Greek Philosophers*, p. 85.

²⁶⁴ Thales, 11 A 22 = Aristotle, *On the Soul* 1.5 411a7-8 and 405a19-21.

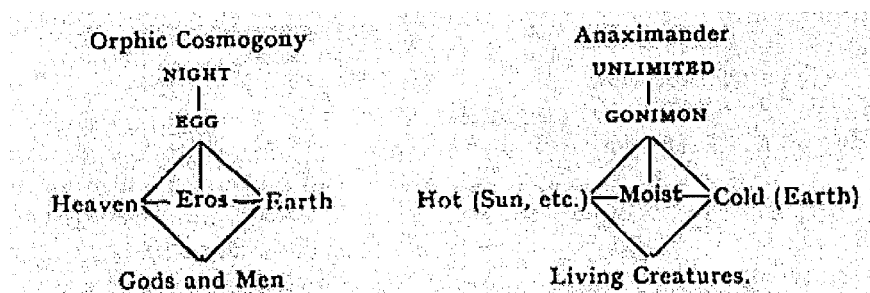


Figure 3

Xenophanes (c. 570 – 475 BC) also indicates a dualistic anthropology, along Orphic lines, when he describes man as *bipartite*, both body and mind,

There is one god, among gods and men the greatest, not at all like mortals in body or in mind.²⁶⁵

We find here in Xenophanes the alteration in how the *Divine* itself was conceived among the philosophers, towards what I have described previously as a *philosophical monotheism*. That is to say, the philosophers were beginning to turn away from the polytheism of the state Olympic religion, to instead conceive of the Divine as *unitary* and *unified*. This resulted from their speculations concerning the nature of unchanging Being, in contrast to Becoming. As the Divine was the *archê* (source) of all Becoming, it must itself be *one*, eternal, and unchanging. Parmenides (c. 515 – 445 BC) demonstrates an instance of this way of thinking. In his *way of truth* poem, he argues that plurality itself entails change-ability, or Becoming, and is therefore incompatible with Being.²⁶⁶

Xenophanes emphasises the same point, that the Divine, the source of Becoming, is itself *one* — great among the plurality of the traditional gods and men. Not only this, but the Divine set Becoming into motion by means of the new ideal of theoretical thought. God is equated with Reason, or Mind (*noos*) itself.

But without toil he sets everything in motion, by the thought of his mind.²⁶⁷

²⁶⁵ Xenophanes, 21 B 23 = Clement, *Miscellanies* 5.109.

²⁶⁶ Parmenides, 28 B 8 DK, 'And it never Was, nor Will Be, because it Is now, a Whole all together, One, continuous...'

²⁶⁷ Xenophanes, 21 B 25 DK = Simplicius, *Commentary on Aristotle's Physics* 23.19.

Heraclitus (*fl. c. 500 BC*) concurs with Xenophanes, in that he also conceives of the Divine as both a unity and the principle of exhaustive rational systematicity. Here he refers to the Divine in the poetic idiom as 'Zeus',

That which alone is wise is one; it is willing and unwilling to be called by the name of Zeus.

That which is wise is one: to understand the purpose which steers all things through all things.²⁶⁸

Logos (reason) constitutes this Divine unity, the ground of all Becoming. It alone truly understands. Heraclitus describes the Divine as an ever-living Fire, and as with Xenophanes' Divine, it transcends the traditional gods and mankind.

... all things come to be [or, happen] in accordance with this *logos*.

Human nature has no power of understanding; but the divine nature has it.

This ordered universe (*cosmos*), which is the same for all, was not created by any one of the gods or of mankind, but it was ever and is and shall be ever-living Fire, kindled in measure and quenched in measure.²⁶⁹

Heraclitus identifies the soul with this *Logos*,

The soul has a self-increasing *logos*.²⁷⁰

The soul then, participates in the *archê* of the cosmos, the ground of Becoming.

Heraclitus also speaks of the souls in Hades, as being transformed, or reborn, by the Divinity into guardians,

When he (*God*) is there, they (*the souls in Hades*) arise and become watchful guardians of the living and the dead.²⁷¹

Those who trust to their sense-experience have barbarous souls, drunkenness leads to wet souls, and dry souls are therefore wisest as they are most sober.²⁷² After death, a man is no longer identified with his corpse, as he is in the Homeric epics. Corpses are

²⁶⁸ Heraclitus, 22 B 32, 41 DK.

²⁶⁹ Heraclitus, 22 B 1, 78, 30 DK.

²⁷⁰ Heraclitus, 22 B 115 DK.

²⁷¹ Heraclitus, 22 B 63 DK.

²⁷² Heraclitus, 22 B 107 DK, 'The eyes and ears are bad witness for men if they have barbarian souls'; 117 'A man, when he gets drunk, is led stumbling along by an immature boy, not knowing where he is going, having his soul wet'; 118 'A dry soul is the wisest and best'.

'more worthy than dung to be thrown away,'²⁷³ and are thus treated by Heraclitus as of no importance.²⁷⁴

Epimarchus of Syracuse (*fl.* 485 – 467 BC) indicates a body-soul duality, with the primacy upon the mind or soul.

Mind sees and Mind hears; everything else is deaf and blind.

If you have a pure mind, you will be pure in all your body.

The body is earth, but the mind is fire.

This fire (of the soul) is derived from the sun.

And it (the sun) is all Mind.²⁷⁵

This soul composes part of the Divine Fire of the Sun, or Mind. As with Heraclitus, it fashions a part of the divine *Logos*, the source of all life.

The *Logos* steers mankind aright and ever preserves them. Man has calculation, but there is also the divine *Logos*. But the human *Logos* is sprung from the divine *Logos*, and it brings to each man his means of life, and his maintenance. The divine *Logos* accompanies all the arts, itself teaching men what they must do for their advantage; for no man has discovered any art, but it is always God.²⁷⁶

Aside from the Pythagoreans, Empedocles of Acragas (*c.* 495 – 435 BC) evidences perhaps the strongest connection to Orphism among the Presocratics. He speaks of himself as an immortal god, and clearly recounts the Orphic eschatology regarding the sinful fall of the soul into the body. He presents a detailed Orphic myth, complete with the three times ten thousand imagery.

²⁷³ Heraclitus, 22 B 96 DK, 'Corpses are more worthy to be thrown out than dung'.

²⁷⁴ I maintain that it would be problematic to argue for any strictly *direct* or *explicit* influence of Orphism upon Heraclitus. Nevertheless, the 1922 work of V. Macchioro argued that Heraclitus' philosophy was entirely constructed upon an Orphic foundation. See, V. Macchioro, *Heraclito: nuovi studi sull' Orphismo*. For a critique of Macchioro's rather contentious argument, see, Guthrie, *Orpheus and Greek Religion*, p. 226-231. However, Guthrie does note the *possible* connections between certain elements of Orphism and Heraclitus, pp. 224-231. For the transformation of the concept of *psuchê* by Heraclitus, possibly along more body-soul dualistic lines, see, Clarke, *Flesh and Spirit*, pp. 288-290, in particular, p. 289 n. 11, which discusses the fragment 22 B 67a DK. A reference to Heraclitus from Sextus Empiricus might also suggest such body-soul dualism, and the immortality of the soul, 'And Heraclitus says that both living and dying exist in both our state of life and our state of death; for when we are alive our souls are dead, that is, entombed within us, and when we die the souls revive and live.' Sextus Empiricus, *Outlines of Pyrrhonism*, 3.230. In, Mates, *The Skeptic Way*, p. 209. This text is, however, dubious, as it is uncertain how much of Sextus' testimony may be attributed reliably to Heraclitus, and how much Sextus is reading in later philosophical ideas.

²⁷⁵ Epimarchus, 23 B 12, 26, 48, 50, 51 DK.

²⁷⁶ Epimarchus, 23 B 57 DK.

I go about among you as an immortal god, no longer a mortal, held in honour by all...

There is an oracle of Necessity, and ancient decree of the gods, eternal, sealed fast with broad oaths, that when one of the divine spirits whose portion is long life sinfully stains his own limbs with bloodshed, and following Hate has sworn a false oath — these must wander for thrice ten thousand seasons far from the company of the blessed, being born throughout the period into all kinds of mortal shapes, which exchange one hard way of life for another. ... Of this number am I too now, a fugitive from heaven and a wanderer, because I trusted in raging Hate.

For by now I have been born as boy, girl, plant, bird, and dumb sea-fish.

I wept and wailed when I saw the unfamiliar land (*at birth*).

From what honour, from what height of bliss (was I cast down) when I left (*Olympus?*) to wander here among mortals.

(A female divinity) clothing (the soul) in the unfamiliar tunic of flesh.²⁷⁷

Along with Xenophanes and Heraclitus, Empedocles identifies the Divine with Mind, or the newly arisen ideal of theoretical thought.

For he is not equipped with a human head on his body ... (he has) no feet, no swift knees ... but he is Mind, holy and ineffable, and only Mind, which darts through the whole universe with its swift thoughts.²⁷⁸

Empedocles then, clearly expresses the Orphic idea of both the Divine origin, immortality, and transmigration of souls. The soul of man forms part of the Rational Mind, which is the Divine.²⁷⁹

In the figure of Socrates (469 – 399 BC) we encounter important parallels with Orphism. In Chapter Three, it was shown that the cult of Delphi was connected with Orphism. Delphi was originally a shrine for *Gaia* (Earth), where Apollo came and slew the python (snake), and so claimed Delphi as his own shrine. The Pythia (prophetess) was maintained but transformed into the Oracle of Delphi — the mouthpiece of Apollo. This myth correlates with the Orphic myth, where it was Apollo who saved the severed head of Orpheus from being consumed by the snake. The head of Orpheus also acted as an oracle by prophesying, until Apollo took over the role, out of jealousy.

²⁷⁷ Empedocles, 31 B 112, 115, 117, 118, 119, 126 DK.

²⁷⁸ Empedocles, 31 B 134 DK.

²⁷⁹ For a further analysis of the Orphic background to Empedocles, see, Guthrie, *Orphism and Greek Religion*, pp. 231-232.

The oracle of Delphi sets the dramatic context for the career of Socrates.²⁸⁰ When Chaerephon questioned the Oracle as to whether anyone was wiser than Socrates, the Oracle responded that there was not anyone wiser. Socrates, curious at this reply, set out to verify what the oracle had spoken. He examined all the leading *experts* in Athens, men who claimed to be wise in their own fields. But in asking them what was the nature of their fields of expertise, Socrates found them to be ignorant. Socrates at last realised that he was wiser than these experts, in that he at least *knew* that he was ignorant, whereas they mistakenly thought they were wise.²⁸¹

Socrates considered his vocation, in questioning the citizens of Athens, to be a religious quest. He understood himself acting as the spokesman for the Oracle, following the god's (Apollo's) command, to find the meaning of the Oracle.

... I felt compelled to put my religious duty first. Since I was trying to find out the meaning of the oracle ... I pursued my investigation at the god's command ... I want you to think of my adventures as a sort of pilgrimage undertaken to establish the truth of the oracle once for all. ... So I made myself spokesman for the oracle That is why I still go about seeking and searching in obedience to the divine command ... I try to help the cause of God ...²⁸²

Socrates concluded that his name ('Socrates') was merely being used as an example. The truth of the matter was that wisdom belongs to the Divine, and that the so-called wisdom of men has very little value, being really only ignorance. The wisest among men, then, is he who has learnt that he is really ignorant.²⁸³

Further to this, Socrates claimed to be under the influence of a *daimon* — a divine guide, or prophetic voice.²⁸⁴ This resembles the Orphic mystics and was exemplified in the prophetic figure of Orpheus himself. Socrates' private oracle would act in a negative way, in that it would warn him not to continue in a certain course of action, and debar him from how he intended to behave.

²⁸⁰ The Oracle of Delphi was also symbolically important for the later Neoplatonist and Neopythagorean philosophers. Iamblichus records a catechism as being taught by the Pythagorean philosophers, in, Iamblichus, *The Life of Pythagoras*, 18, 'What is the oracle at Delphi? The Tetraktys, the very thing which is the Harmony of the Sirens.' The Tetraktys is, of course, the holy number *ten*, which for the Pythagoreans formed the basis for the Harmony of the Cosmos, expressed in the ten cosmic bodies. See also, Burkert, *Lore and Science in Ancient Pythagoreanism*, pp. 91, 187.

²⁸¹ Plato, *Apology*, 21a – 23c.

²⁸² Plato, *Apology*, 21e, 22a, 22d, 23b.

²⁸³ Plato, *Apology*, 23a-b.

The portrayal by Plato of Socrates' own religiosity, through the Delphic oracle, and through his own mystic prophetic voice, suggests that we are to consider Socrates as a philosophical Orphic bard. He would roam the streets of Athens, speaking prophetically on behalf of the *Logos* — the spirit of Philosophy. Those who claimed to be lovers of wisdom (*philo-sophia*), first had to acknowledge their own ignorance. The Divine alone was the source of wisdom,²⁸⁵ and it was by identifying with the Divine that wisdom could be achieved. This wisdom (*sophia*) of course took on for the philosophers a nature consonant with the new ascendancy of theoretical thought. The Divine was Reason, the philosophical *Logos*. To have a right *Logos* meant that one had to somehow connect to this Universal Wisdom, this Divine *Logos*.

For Socrates, this meant that the populace of Athens needed to abandon the authority of traditional experts such as Homeric poets, and military leaders, and adopt the way of philosophy. Wisdom took on a new foundation for Socrates. It paid little respect to the self-appointed supremacy of the traditional Homeric religiosity, and saw instead a new religiosity, a new way of life, in the Orphic-philosophical worldview.²⁸⁶

This is vital for our understanding of Plato, who in fact uses the figure of Socrates in the drama of his dialogues as the new ideal for a *hero*. The *aretê* (virtue) of the hero is no longer the Homeric military prowess, but rather the *aretê* of the philosopher. Thus virtue for Plato is epitomised by quiet and calm acquiescence to reason, exemplified in the manner that Socrates faced his own death — a philosophically transformed heroic martyrdom.

Socrates then, acts as an Orphic-philosopher hero in the Platonic drama. The hero *Socrates*, represents the new literate-philosophical order of the Orphic-philosopher. He faces the ignorant opposition of the Athenian leaders and spokesmen, who represent the older order of Homer. The battle results in the hero Socrates being martyred. In traditional terms, the death of the hero would have been a tragedy. But Plato's new drama-dialogue inverts this into a victory. Death *liberates* the soul from the body, as the

²⁸⁴ Plato, *Apology*, 31d, 40a-c.

²⁸⁵ Plato, *Apology*, 23a, 'But the truth of the matter, gentlemen, is pretty certainly this, that real wisdom is the property of God, and that this oracle is his way of telling us that human wisdom has little or no value'.

new Orphic religiosity teaches. Death should be welcomed, especially in this case, as the death of the virtuous philosopher hero (Socrates) becomes the death that breaks the cycle of reincarnation. Socrates' immortal soul is liberated to return to the Divine (i.e. Universal Reason) from whence it came.²⁸⁷

4.3 Pythagorean Orphism

4.3.1 The Orphic-Pythagorean Philosophical Synthesis

Out of all the Presocratics, however, it was in and through the Pythagorean movement that the synthesis was forged between the new Orphic religiosity and the new literate-philosophical disposition. Mathematics acted as the anvil upon which this new link was beaten into shape.

4.3.2 Interpreting the Early Pythagoreans

In so far as contemporary historical research is concerned, the figure of Pythagoras is almost as enigmatic as the figure of Orpheus.

Walter Burkert set the scene for twentieth century scholarship in his technical volume on Pythagoreanism.²⁸⁸ There he opened up the question of textual criticism along a two-fold line. He argued that, although there is a general body of common evidence available, the ancient textual evidence regarding Pythagorean philosophy is divided into two streams. There is the testimony of Aristotle on one hand, and the testimony of the Platonic — Neoplatonic/Neopythagorean tradition on the other hand.²⁸⁹

Burkert takes the position that the Platonic tradition of the Academy essentially read back later Platonic ideas into their exposition of Pythagoras and Pythagoreanism.

²⁸⁶ That Socrates propounded a new religiosity and opposed the traditional Athenian 'Olympic' religiosity has been argued by Michael Morgan, in, Morgan, *Platonic Piety*.

²⁸⁷ Morgan considers the story of Socrates in the *Phaedo*, to be the story of a 'new Pythagoras', embodying an Orphic-Pythagorean 'nearly seditious' dissent against the traditional Athenian 'Olympic' piety and *polis* tradition. Morgan, *Platonic Piety*, pp. 57-58.

²⁸⁸ Burkert, *Lore and Science in Ancient Pythagoreanism*.

²⁸⁹ Burkert is generally followed in his analysis, regarding these two strands of testimony, by contemporary historians of ancient philosophy, such as, Carl Huffman, *Philolaus of Croton: Pythagorean and Presocratic*, and Charles Kahn, *Pythagoras and the Pythagoreans*.

Aristotle, he argues, presents to us a fairly reliable account of the contrast between early (pre-Platonic) Pythagoreanism and Platonism.²⁹⁰

Regarding the pre-Platonic Pythagoreans, Aristotle reports that Plato diverged from them in that,

...positing a dyad and constructing the infinite out of great and small, instead of treating the infinite as one, is peculiar to him [i.e. Plato]; and so is his view that the numbers exist apart from sensible things, while they say [i.e. the Pythagoreans] that the things themselves are numbers, and do not place the objects of mathematics between Forms and sensible things.²⁹¹

Thus, according to Aristotle, the Pythagoreans, (1) did not separate number from things, and (2) postulated only a single Unlimited (or 'Infinite'), and not a *dyad* as the Unlimited.

This Aristotelian testimony conflicts with the slightly later testimony of Theophrastus (c. 372 – 287 BC), who stated,

Plato and the Pythagoreans make the distance between the real and the things of nature a great one, but hold that all things wish to imitate the real; yet since they make a sort of opposition between the One and the indefinite dyad, on which essentially depends what is indefinite and disordered and, so to speak, all shapelessness, it is absolutely impossible that for them the nature of the whole should exist without the indefinite dyad; they say that it has an equal share in things with, or even predominates over, the other principle; whereby they make even the first principles contrary to one another.²⁹²

Theophrastus then, denied both (1) and (2), and instead indicated that the Pythagoreans both *separated* number from things, and posited an indefinite *dyad* as the Unlimited. Both Burkert and Huffman argue that Theophrastus was likely relying upon Speusippus (fl. c. 349 – 399 BC) for his testimony.²⁹³ In a passage from William of Moerbeke's Latin translation of Proclus' commentary on the *Parmenides* of Plato, first published in 1953, Proclus makes a report regarding Speusippus,

²⁹⁰ See, Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 9. Burkert takes the Aristotelian testimony to reflect the pre-Platonic Pythagoreanism of Philolaus. Regarding Pythagoras himself however, Burkert sees him merely as a shamanistic cult-leader having no serious mathematical or philosophical interest. Cf. Kahn, *Pythagoras and the Pythagoreans*, p. 3.

²⁹¹ Aristotle, *Metaphysics*, 987b25-29.

²⁹² Theophrastus, *Metaphysics*, 11a27. Ross-Fobes translation. Quoted from, Huffman, *Philolaus of Croton: Pythagorean and Presocratic*, p. 22.

²⁹³ See, Burkert, *Lore and Science in Ancient Pythagoreanism*, pp. 62-64; Huffman, *Philolaus of Croton: Pythagorean and Presocratic*, pp. 22-24. Cf. Kahn, *Pythagoras and the Pythagoreans*, p. 23.

What does he [i.e. Speusippus] say? “For they held that the One is higher than being and is the source of being; and they delivered it from that status which is in accord with (its being) a principle. On the other hand, they held that given the One, in itself, conceived as separate and alone, without the other things, with no additional element, nothing else would come into existence. And so they introduced the indefinite duality as the principle of beings.”²⁹⁴

Speusippus here is reporting on the views of those he calls ‘the ancients’.²⁹⁵ The identity of this group of people, both Burkert and Huffman argue, can only be the Pythagoreans.²⁹⁶ This would suggest then, that Theophrastus was following Speusippus in his report of the Pythagoreans, rather than Aristotle. Both Burkert and Huffman take this to indicate that the successors of Plato at the academy tended to equate the doctrine of Plato with the earlier Pythagoreans.²⁹⁷ The later Neoplatonic philosophers also seem to have followed in this Platonic version of Pythagoreanism.²⁹⁸

The Aristotelian testimony, however, faithfully reflects the evidence we have concerning pre-Platonic Pythagoreanism as exemplified in the fragments of Philolaus of Croton (c. 470 – 390 BC).²⁹⁹ Whether the sort of cosmological and mathematical philosophy exemplified in Philolaus was also present among the earlier Pythagoreans, and even to Pythagoras himself, is a debated question. Burkert and Huffman argue that it took its basic origins only in Philolaus.³⁰⁰ Kahn however, argues that Pythagoras himself is rightly considered as the founder of the cosmological and mathematical philosophy of

²⁹⁴ Speusippus, F48T, Anscombe and Labowsky translation. Quoted from, Huffman, *Philolaus of Croton: Pythagorean and Presocratic*, p. 23. Cf. Burkert, *Lore and Science in Ancient Pythagoreanism*, pp. 63-64, who first signalled the significance of this passage.

²⁹⁵ In Latin, ‘tamquam placencia antiquis’. Huffman notes that Taran (Taran, *Speusippus of Athens*, pp. 350ff) attempted to argue that it was Proclus, not Speusippus, who regarded these as the views of the ancients. As Huffman notes however, ‘... Proclus’ remark makes much more sense as an explanation of who Speusippus is referring to with the plural subjects in the passage.... [this way of reading the passage] is also supported by the tie to Theophrastus (*Metaph.* 11a27)’, Huffman, *Philolaus of Croton: Pythagorean and Presocratic*, p. 23 n. 7.

²⁹⁶ Burkert states, ‘It is clear that as far as Proclus could tell, Speusippus was speaking simply of “the ancients” (οἱ παλαιοί). But there is only one possible interpretation of this. Speusippus is not presenting his own system, in which the indefinite Dyad was replaced by the concept of “plurality (πλῆθος),” along with other modifications. But he cannot be using the expression “the ancients” of Plato either, even disregarding the plural form; he only outlived Plato eight years. Therefore Speusippus was referring to the Pythagoreans, and possibly thinking of Pythagoras himself. Plato himself speaks of Pythagorean views as an “ancient” revelation.’ In, Burkert, *Lore and Science in Ancient Pythagoreanism*, pp. 63-64. Cf. Huffman, *Philolaus of Croton: Pythagorean and Presocratic*, p. 23.

²⁹⁷ See, Burkert, *Lore and Science in Ancient Pythagoreanism*, pp. 62-64; Huffman, *Philolaus of Croton: Pythagorean and Presocratic*, pp. 21-24.

²⁹⁸ See, Kahn, *Pythagoras and the Pythagoreans*, pp. 94-138.

²⁹⁹ See, Kahn, *Pythagoras and the Pythagoreans*, pp. 23-38.

the Pythagoreans.³⁰¹ In either case, for the sake of this thesis, the essential point is that we can to a certain extent evaluate the state of *pre-Platonic* Pythagorean philosophy, primarily through works of Philolaus and Aristotle.

4.3.3 Pythagoras as an Orphic Philosopher

Pythagoreanism, I wish to argue, may be helpfully understood as an *Orphic Philosophy*.

The question of the priority of Orphism to Pythagoreanism, or vice versa, is one that has vexed contemporary scholarship. Pythagoras himself lived c. 570 – 495 BC, which is approximately the oldest date to which we are able to trace a distinct Orphic religiosity in ancient Greece.³⁰² Tradition records that certain Orphic poems were composed in Italy by such men as Orpheus of Croton, Orpheus of Kamarina, Zopyros of Heracleia in Lucania, Brontinos of Metaponton, and Kerkops. Orpheus of Croton possibly predated Pythagoras, and Brontinos and Kerkops were Pythagoreans.³⁰³ At the same time as this, certain Orphic poems can be traced to an Athenian source, centring upon the figure of Onomacritos, a colleague of Orpheus of Croton.³⁰⁴

³⁰⁰ As noted by, Kahn, *Pythagoras and the Pythagoreans*, pp. 14-15.

³⁰¹ See, Kahn, *Pythagoras and the Pythagoreans*, pp. 34-38. Kahn, for example, states, 'There is another, quite general consideration telling in favour of an authentic tradition attributing the mathematical conception of the cosmos to Pythagoras himself, even though we cannot reconstruct his view with any precision. The notion of cosmic harmony expressed in numerical ratios and conceived as astral music is one of those ideas of genius that have remained amazingly fruitful over the centuries. That Pythagoras was an intellectual figure of extraordinary stature is recognised in every reference to him, whether favourable or unfriendly, not only by admirers like Empedocles and Ion but also by Heraclitus, Herodotus, and Isocrates. There is no other early Pythagorean of whom this can be said. Philolaus may be a respectable thinker, but certainly no intellectual genius. And we know almost nothing of Hippasus. If we are right to assume that great ideas originate only in great minds, then we have only one candidate for this innovation: the work of Pythagoras himself.', pp. 37-38. Kahn also notes that 'recent scholarly opinion seems to be inclining to a more positive view of Pythagoras as mathematician and philosopher.', p. 38, n. 29.

³⁰² I previously noted, in Chapter One, two pieces of evidence that establish Orphism within the early classical period: (1) The Derveni papyrus, written in the 4th c. BC, represents the later codification of an, at least, 5th c. BC Orphism. See, West, *The Orphic Poems*, p. 108. (2) In addition to this, is the 5th century BC graffiti from Olbia (first published in 1978), which contains the term '*Orphikoi*' (or '*Orphikon*'), along with '*sôma psuchê*'. See, West, *The Orphic Poems*, pp. 17-18; Kahn, *Pythagoras and the Pythagoreans*, pp. 20, n. 37.

³⁰³ See, Guthrie, *Orpheus and Greek Religion*, pp. 216-217.

³⁰⁴ See, Guthrie, *Orpheus and Greek Religion*, p. 217. Burkert, however, raises the caveat that although Onomacritos certainly collected and edited Orphic poems, the idea that he composed whole poems is only a philological conjecture. See, Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 130, n. 58.

That Orphism predated and influenced Pythagoras, has been argued by scholars such as, Rohde, Zeller, Rathman, Guthrie, Nilsson, Kern, Jaeger, and Bluck.³⁰⁵ Kahn takes a more agnostic position, that the priority of one over the other is difficult to ascertain.³⁰⁶

The main ancient textual evidence that is adduced *against* the historical priority of Orphism to Pythagoreanism, however, I do not consider to be successful in its refutation. The two sources are (1) Ion of Chios (*fl.* c. 452 – 421 BC) and Epigenes (*fl.* c. 200 BC), and (2) Herodotus.

According to Ion and Epigenes, Pythagoras himself was alleged to have ‘written some poems and attributed them to Orpheus’.³⁰⁷ Certainly, if we take this testimony to be valid, then this would suggest that Pythagoras (along with others) composed and circulated poems under the name of Orpheus. This would help confirm the very strong connection between Pythagoreanism and Orphism. But this, in itself, does not suggest that every single Orphic poem was composed by Pythagoras, or even by a Pythagorean, nor that there were no Orphic poems composed independently of Pythagoreanism. Yet in addition to this, there is also sufficient reason to doubt the validity of the testimony.³⁰⁸

The passage from Herodotus, that is often raised in objection to the historical priority of Orphism, suffers from a textual difficulty. The passage from the *Histories* at the crucial point, has two different textual variants, the shorter Florentine text, and the longer Roman text.

³⁰⁵ As noted by Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 128, n. 49. Guthrie, for example, concludes that, ‘After what has been said, the difficulty of deciding whether Orphism or Pythagoreanism came first needs no further emphasis. It nevertheless seems most likely from the character of the two systems, and in particular from that fact that Pythagoreanism takes up Orphism into itself but has as well an intellectual system to reinforce it, that Orphic dogma was already formulated, at least in its main outlines, when Pythagoras founded his brotherhood.’ Guthrie, *Orpheus and Greek Religion*, p. 220.

³⁰⁶ Kahn, *Pythagoras and the Pythagoreans*, pp. 20–21. Kahn notes however, that he believes the common traits between Orphism and Pythagoreanism to predate either tradition.

³⁰⁷ See, Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 129; Guthrie, *Orpheus and Greek Religion*, p. 217; Linforth, *The Arts of Orpheus*, pp. 110–119; Kahn, *Pythagoras and the Pythagoreans*, p. 20, n. 38.

³⁰⁸ As Burkert states it, ‘Clearly, to an educated person of the age of the Sophists it already seemed incredible that works had been preserved that were written by a member of the Argonautic expedition [i.e. Orpheus]. On the other hand, they had to account for the existence of the “Orphic” literature, and there were various ways to do this. ... [O]ne could put the responsibility upon other writers – ancient epic poets, Onomacritus, or Pythagoras and various Pythagoreans.’, Burkert, *Lore and Science in Ancient Pythagoreanism*, pp. 129–130.

The Roman text (or a conglomeration of the two) is the one appealed to by those who wish to argue against an Orphic priority. This reads,

It is, however, contrary to religious usage to be buried in a woollen garment, or to wear wool in a temple. This custom agrees with the rites known as Orphic and Bacchic (actually Egyptian and Pythagorean); for anyone initiated into these rites is similarly debarred from burial in a garment of wool. They have a sacred story which explains the reason for this.³⁰⁹

The claim is that here, Herodotus reports that Orphic and Bacchic rites are in reality Egyptian and Pythagorean, thus suggesting that Orphic religiosity is in some way derivative from Pythagoreanism. Even if this textual version were accepted as valid, however, this global assertion need not be the case. Herodotus here, merely reports upon certain *specific rites* regarding burial garments that are, among his contemporaries, classified as Orphic and Bacchic, or alternatively that those who practice *these rites* are called Orphic or Bacchic. Herodotus then claims that in actuality, *these rites* are of Egyptian and Pythagorean origin, or alternatively that those who practice *these rites* are in reality Egyptians and Pythagoreans. This itself does not in any way suggest that other *different rites* are not genuinely of Orphic or Bacchic origin, or alternatively that those who practice *certain other rites* are not genuinely Orphic or Bacchic.

Yet, there are important difficulties with the Roman text of Herodotus at this point. I follow Linforth who argues against the Roman text as containing a later interpolation.³¹⁰ If the Florentine text is followed at this point, as I believe it should be, then the passage would read:

The Egyptians agree in this with the Orphics, as they are called, and with the Pythagoreans; for it is similarly against the rule for anyone who takes part in these rites to be buried in woollen [sic.] garments. These customs are the subject of a sacred legend which is told by the Egyptians.³¹¹

If this textual version is followed, then Herodotus is merely reporting that certain particular burial rites of the Egyptians share a commonality with both Orphic rites, and

³⁰⁹ Herodotus, *Histories*, Book II, 81. Aubrey de Selincourt translation (John Marincola revision).

³¹⁰ Linforth, *The Arts of Orpheus*, pp. 44-50. Burkert notes that Wilamowitz, Rathmann, Linforth, Long, and Timpanaro Cardini all argue for interpolation in the Roman text (and hence prefer the Florentine text). Whereas the longer Roman text is defended by Kruger, Boyance, and Dodds. See, Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 127, n. 39. Burkert himself appears undecided on the matter of whether there is interpolation in the Roman text, or abridgement in the Florentine text. See, pp. 127-128.

with Pythagorean rites. This then establishes a specific commonality of burial rites between Orphism and Pythagoreanism. But it does not suggest the historical priority of one over the other in any way.

In addition to his textual argument for interpolation, Linforth notes that the only other reference for the prohibition on the use of wool in the Graeco-Roman world, is from Apuleius (c. AD 124 – 170). It reads,

Wool, an outgrowth from the body of a particularly sluggish creature, taken, as it is, from the body of a sheep, has been regarded as a form of clothing unsuited for sacred purposes ever since it was so proscribed in the rules of Orpheus and Pythagoras.³¹²

If Apuleius is following Herodotus as his source of information, which is very likely, then he was familiar with what we now know as the Florentine version of the text, not the Roman. This then, provides further credence to the Florentine reading.³¹³

These two passages adduced against the historical priority of Orphism are not, in my opinion, successful. As such, I myself consider the more likely, yet tentative, conclusion to be that the Orphic religiosity predated the advent of Pythagoreanism as a philosophical movement. In due course, however, these two movements became intimately connected, and associated together. In this regard, the question of priority becomes less important.³¹⁴

The Pythagorean movement became intertwined with the Orphic religiosity, more than any other movement in Presocratic philosophy. From this developed, what may be called, an *Orphic-philosophical* (or *Orphic-Pythagorean*) tradition.³¹⁵

³¹¹ Herodotus, *Histories*, Book II, 81, Florentine text. Linforth translation. Quoted from, Linforth, *The Arts of Orpheus*, pp. 48-49.

³¹² Apuleius, *Apologia* 56. Quoted from, Linforth, *The Arts of Orpheus*, p. 47

³¹³ Linforth, *The Arts of Orpheus*, p. 47.

³¹⁴ As Kahn notes, 'Eventually, of course, these two originally distinct traditions tend to merge, at least in their literary expression, and the lyre of Orpheus becomes the symbol for Pythagorean cosmic music. A syncretist tendency can be observed as early as the Derveni papyrus, which contains poetic quotations from an archaic Orphic theogony together with an allegorical prose commentary of about 400 B.C. The aim of the Derveni commentator is to reinterpret the mythic figures of the old Orphic text in terms of Presocratic natural philosophy, and thus to prepare (indirectly) for the confluence of Orphic and Pythagorean traditions. In, Kahn, *Pythagoras and the Pythagoreans*, p. 22.

³¹⁵ This is independent of whether Orphism or Pythagoreanism had historical priority, as the point under contention is that pre-Platonic Pythagoreanism transformed elements of the then existing Orphic religiosity.

Orphism and Pythagoreanism held in common a specific way of life (*bios*), dietary prohibitions, rites for burial, and ritual purification and initiation ceremonies.³¹⁶ This shared religiosity often expressed itself in asceticism, and in vegetarianism.³¹⁷

Importantly, Pythagoreanism incorporated both Orphic anthropology and eschatology. The soul formed the seat of the human essence, it was immortal, and distinguished from the mortal body. Not only was the soul immortal, but it transmigrated at the body's death. Pythagoreanism maintained the Orphic cycles of re-incarnations, and the soul's prior existence in other bodies.³¹⁸ Metempsychosis, or transmigration of the soul, is further confirmed by Xenophanes, who reports that Pythagoras recognised the soul of a departed friend reincarnated in a puppy,

Once [Pythagoras] passed by as a puppy was being beaten, the story goes, and in pity said these words:

"Stop, don't beat him, since it is the soul of a man, a friend of mine, which I recognised when I heard it crying."³¹⁹

Empedocles seems to allude to Pythagoras' ability to recollect prior incarnations,

For whenever he reached out with his whole intellect, he easily discerned each one of existing things, in ten and even twenty lifetimes of mankind.³²⁰

The Orphic purification rites were adopted by the Pythagoreans, in which the soul may be cleansed, and thus eventually liberated from its cycle of rebirth back to the Divine.³²¹

³¹⁶ See, Kahn, *Pythagoras and the Pythagoreans*, p. 21; Guthrie, *Orpheus and Greek Religion*, pp. 217-218.

³¹⁷ Kahn notes that, 'Vegetarianism is Orphic in Euripides, *Hippolytus* 952-4, and in Plato, *Laws*, VI, 782c. It is Pythagorean in Middle Comedy and Diodorus of Aspendus (early fourth century)'. In, Kahn, *Pythagoras and the Pythagoreans*, p. 21, n. 40.

³¹⁸ Porphyry, probably following Dicaearchus, notes, 'What he [i.e. Pythagoras] said to his followers no one can say with assurance, for it was no ordinary silence that they kept. But what has become best known to everyone is, first, that the soul is immortal and furthermore changes into other kinds of animals; in addition, that whatever happens will occur again according to certain cycles and nothing is absolutely new...', Pythagoras 14.8a DK = Porphyry, *Life of Pythagoras* 19. Kahn notes that this is one of the least unreliable reports regarding Pythagoras. See, Kahn, *Pythagoras and the Pythagoreans*, p. 11. Also see the discussion in, McKirahan, *Philosophy before Socrates*, p. 85.

³¹⁹ Xenophanes, 21 B 7 DK. See discussion in, Kirk, Raven, and Schofield, *The Presocratic Philosophers*, pp. 219-220.

³²⁰ Empedocles 31 B 129 DK. See discussion in, Kahn, *Pythagoras and the Pythagoreans*, pp. 11-12.

³²¹ See discussion in, Kirk, Raven, and Schofield, *The Presocratic Philosophers*, pp. 236-238, concerning the passages, Aristotle, fr. 196 (Pythagoras 58 C 2 DK), and Aristotle, *Posterior Analytics* 94b32-4 (Pythagoras 58 C 1 DK). Kirk, Raven, and Schofield state that, '[these passages – along with Pindar, *Olympians* II, 56-77] ... suggests that Pythagoras taught an eschatology according to which: (1) the soul is subject after death to a divine judgement; (2) there follows punishment in the underworld for the wicked

But perhaps of greatest significance for the understanding of Plato, consists in how the Pythagoreans developed Orphic anthropology into a philosophical doctrine, and how they transformed the Orphic emphasis upon music into an harmonic theory. This latter aspect, mathematically represented, becomes for the Pythagoreans the very foundation of the cosmos.

4.3.4 Tonal Transposition: From Orphic *Mousikê* to Pythagorean Harmonic Theory

One of the key elements to the Orphic mysteries involves the role of Orpheus as the musical bard. He functions as an exponent of what was identified in Chapter Two as *Mousikê*. This consists of the arts of poetry, singing, and musicianship, which are at the core of the myth making within an oral-mythical cultural form. Through his *mousikê* Orpheus was able to gain entrance into Hades in order to attempt to rescue Eurydice. As a bard he accompanied the Argonauts on their great quest for the Golden Fleece.

Given the fundamental significance of *mousikê* in Orphism then, what would be the result if the new literate-philosophical approach were applied to the arts of *mousikê*? We have already seen that myth making, and story telling, were transformed into concepts of literal truth, but what of the aspect of music itself?

It was to the Pythagoreans that this task fell, of transforming music into the domain of the literate-philosophical. The result, for them, was that the *realities behind* concrete musical experience were the abstracted notions of harmony and ratio, understood in terms of arithmetical and geometrical relationships.

Iamblichus recounts the story, most certainly apocryphal,³²² in which Pythagoras passed a blacksmith's shop. Upon hearing that the sounds of the various sized hammers

(perhaps with hope of eventual release... but (3) a better fate for the good, who – if they remain free from wickedness in the next world and in a further reincarnation in this – may at last reach the isles of the blessed...', pp. 237-238.

³²² On the apocryphal nature of this story see, Fidler's introduction in, Guthrie, *The Pythagorean Sourcebook and Library*, p. 24. Also see, Levin, *The Harmonics of Nichomachus and the Pythagorean Tradition*, Ch.6. It should also be noted that the first recorded use of the monochord to demonstrate the connection between mathematical ratios and musical intervals is in Euclid (c. 300 BC) *Katatome kanonos* (i.e. *Division of the Monochord*), and it is thought that he was in turn drawing on the work of Archytas of Tarentum (c. 375 BC). See, Abraham, *The Concise Oxford History of Music*, pp. 28-29. In addition to this,

on the anvil harmonised, all except for one, he went in to inquire. There he discovered that the difference in sound arose only from the size of the hammer, not from the force of the stroke, or the shape, or the angle of striking. After measuring these, he went home and constructed for himself a series of monochords (i.e. gut strings tightly strung and fixed at each end). From these, says Iamblichus, he discovered the ratios of the harmonic series of musical intervals.³²³

This story embodies, in a rather naïve way, the nature of the Pythagorean harmonic theory. This is best preserved for us, in terms of pre-Platonic Pythagoreanism, in a fragment of Philolaus,

The magnitude of harmonia (fitting together) is the fourth (syllaba) and the fifth (di'oxeian). The fifth is greater than the fourth by the ratio 9:8 [a tone]. For from *hypatê* [lowest tone] to the middle string (*mesê*) is a fourth, and from the middle string to *neatê* [highest tone] is a fifth, but from *neatê* to the third string is a fourth, and from the third string to *hypatê* is a fifth. That which is in between the third string and the middle string is the ratio 9:8 [a tone], the fourth has the ratio 4:3, the fifth 3:2, and the octave (*dia pasôn*) 2:1. Thus the harmonia is five 9:8 ratios [tones] and a diesis, and the fourth two 9:8 ratios [tones] and a diesis.³²⁴

In other words, the ratio of 1:2 produces the interval of the octave, 2:3 produces the fifth, 3:4 produces the fourth, and that a tone consists of the 8:9 ratio. These ratios in turn are produced as the result of combining a fundamental tone, with its octave, along with the harmonic mean $(2AB)/(A+B)$ which makes the interval of the fourth and arithmetic mean $(A+B)/2$ which makes the fifth. Reducing the ratios to common numerical factors, we arrive at the symmetrical and harmonious system of 6:8::9:12, i.e. 6:12 is 1:2 — the octave, both 6:9 and 8:12 are 2:3 — the fifth, both 6:8 and 9:12 are 3:4 — the fourth, leaving the single tone 8:9 ratio in the middle. Fideler pictures the overall result as follows.

the story seems to presuppose, falsely, that the pitch of the sounds emitted from hammers striking anvils, is proportional only to their weight. See, Huffman, *Philolaus of Croton: Pythagorean and Presocratic*, p. 148.

³²³ Iamblichus, *The Life of Pythagoras*, 26. See also, Diogenes Laertius, *The Life of Pythagoras*, 11, 'He discovered the numerical relation of sounds on the monochord ...'

³²⁴ Philolaus, 44 B 6a = Stobaues, Selections 1.21.7d. Quoted from, Huffman, *Philolaus of Croton: Pythagorean and Presocratic*, pp. 146-147. Huffman argues for the authenticity of this fragment, pp. 147-156.

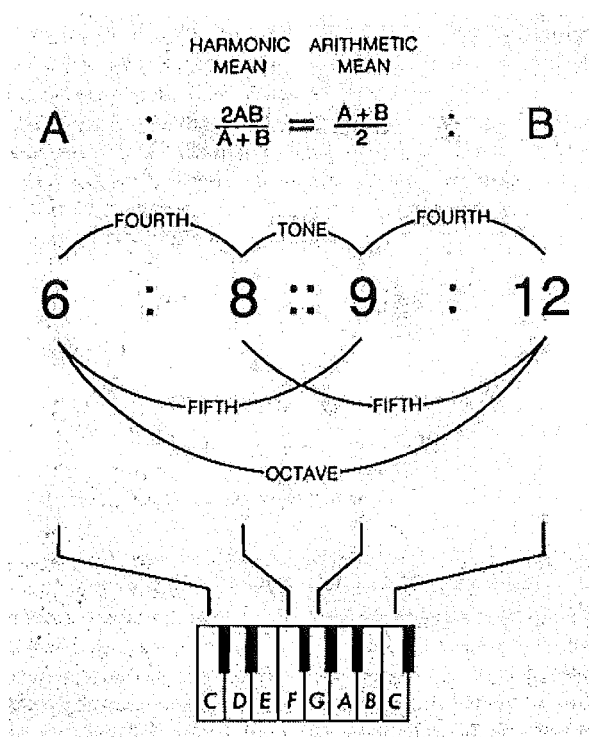


Figure 4

This discovery of a *theoretical* mathematical basis to the harmonic ratios in vibrating strings, was extended out to the macrocosmic level. The universe itself, especially the revolution of the planets, could all be theoretically analysed in terms of these harmonic ratios. Aristotle reports that,

... since, again, they saw that the attributes and the ratios of the musical scales were expressible in numbers; since, then, all other things seemed in their whole nature to be modelled after numbers, and numbers seemed to be the first things in the whole of nature, they supposed the elements of numbers to be the elements of all things, and the whole heaven to be a musical scale and a number.³²⁵

³²⁵ Aristotle, *Metaphysics* I.5, 985b31ff. See also the following: (1) Alexander, *In Aristotelis Metaphysica commentaria*, 41,2ff, '... they made the arrangement of the celestial bodies harmonious by supposing that the ten moving bodies which make up the universe are separated from each other by concordant intervals.'; Aristotle, *Metaphysics* I.8, 990a18ff, '[Concerning the Pythagoreans...] But yet how must we understand that number and the characteristics of numbers are the causes of the things that are and come to be in the heavens, both from the beginning and now, but that there is no other [kind of] number besides the number from which the world-order is constituted? For whenever opinion or due season are in such and such a region in their view, and a little above or below injustice and separation and mixture, and they state as proof that each of these is a number, and that there are already a multitude of composite magnitudes in this place because these characteristics [of number] correspond to these several regions, is it this same number, the number in the heavens, which we must understand each of these [concepts] to be, or is it another kind of number besides this?' (2) Alexander, *In Aristotelis Metaphysica commentaria*, 74.6, 'For they said that

At the microcosmic level, the human soul and its accompanying virtue were analysed in terms of the harmonic proportions of mathematics. Music, or harmonic ratio, was the way in which the soul was tempered toward excellence.³²⁶

Pythagoras first attempted to speak about excellence [or *virtue*], but not successfully; for by referring the excellence to numbers he submitted the excellences to a treatment which was not proper to them. For justice is not a square number.³²⁷

Since of these principles numbers are by nature the first, and in numbers they seemed to see many resemblances to the things that exist and come into being — more than in fire and earth and water (such and such a modification of numbers being justice, another being soul and reason, another being opportunity — and similarly almost all other things being numerically expressible)...³²⁸

The discovery, then, of these harmonic proportions, along with their application both at the macrocosmic and at the microcosmic level, can be profitably viewed as a transformation of the Orphic emphasis on *mousikê* into an abstract theoretical mathematical philosophy.

opinion is established in a particular part of the universe, and due season in another, and in yet another in turn, whether below or above these, either injustice or separation or mixture or some other of these things in the heavens. The proof they offered that these things are established according to an arrangement such as this is that each of them belongs to a number, and there is a particular number proper to each place in the universe. For at the center is 1 (for the center is the first place in the universe); after the center is 2, which they called both “opinion” and “daring”; and in this way the number of things being constituted becomes greater as they keep moving away from the center, because the numbers too from which they are constituted, or rather with which they are identical, are of this kind. For they said that numbers and their characteristics follow the places in the heavens, and are proper to them; and that for this reason spatial magnitudes too come into existence at a later stage out of these numbers... In the second book of his treatise on the doctrine of the Pythagoreans, Aristotle mentions the arrangement of the numbers in the heavens which the Pythagoreans devised.’ (3) Alexander, *In Aristotelis Metaphysica commentaria*, 75.21, ‘They said, for instance, that opinion occupies that place in the universe which, they believed, 2 occupies, since for them 2 was opinion. To due season they gave in turn that place in the universe which 7 occupies, since they also thought that the number 7 is due season. And a little above or below due season they located injustice or separation, whichever it happened to be, because the arrangement of the numbers which are the same as these was also the same. Certain transcriptions of the text have the reading *anikia* (non-victory) instead of *adikia* (injustice). For they say that the Pythagoreans called the number 5 *anikia*.’ All three passages are quoted from, Huffman, *Philolaus of Croton: Pythagorean and Presocratic*, pp. 282-285.

³²⁶ This idea is also adopted by Plato, *Republic* 443c-e, ‘And in truth justice is, it seems, something of this sort. However, it isn’t concerned with someone’s doing his own externally, but with what is inside him, with what is truly himself and his own. One who is just does not allow any part of himself to do the work of another part or allow the various classes within him to meddle with each other. He regulates well what is really his own and rules himself. He puts himself in order, is his own friend, and harmonizes the three parts of himself like three limiting notes in a musical scale — high, low, and middle. He binds together those parts and any others there may be in between, and from having been many things he becomes entirely one, moderate, and harmonious.’ Grube translation (rev. Reeve, from the Cooper ed.).

³²⁷ Aristotle, *Magna Moralia*, I: 1182a11ff.

³²⁸ Aristotle, *Metaphysics*, I:5, 985b25ff.

4.3.5 The Pythagorean Mathematical World-Order

Through the influence of the literate-philosophical worldview, the Pythagoreans transformed *mousikê* into an abstract mathematical harmonic system. This further encouraged them to comprehend the whole of the cosmos in terms of this newly devised mathematical analysis.

Isocrates (c. 436 – 338 BC) reports that Pythagoras acquired the wisdom of the Egyptians,³²⁹ and according to Aristotle the Pythagoreans were the first to advance the study of mathematics in Greece.³³⁰ In effect, Pythagoras would have engaged in the process of restructuring the ancient mathematical learning, carried on by the later Greek mathematicians. This ancient learning was transformed out of its concrete oral-mythical setting onto a more abstract theoretical basis, such as is exemplified in the later axiomatic geometrical methods of Euclid.³³¹

The Pythagoreans envisioned a cosmic world-order that was founded upon, and built out of, mathematics. The *archê*, first principle, or the Divine, for them was the Limit. It formed the foundational principle of cosmic unity. Over and against the Limit, was the Unlimited. It embodied the principle of plurality.³³²

³²⁹ Isocrates, *Busiris*, 28, 'Pythagoras of Samos, having traveled [sic.] to Egypt and studied there, was the first to introduce high culture (*philosophia*) to the Greeks'. Quoted from, Kahn, *Pythagoras and the Pythagoreans*, p. 12.

³³⁰ Aristotle, *Metaphysics*, I:5, 985b22ff, '... the Pythagoreans, as they are called, devoted themselves to mathematics; they were the first to advance this study, and having been brought up in it they thought its principles were the principles of all things.'

³³¹ A comparison and analysis of the difference between the concrete Egyptian and Babylonian arts of counting and measuring, and the abstract theoretical mathematics of philosophical Greece, in light of the advent of the literate-philosophical and Orphic movements, shall be reserved until Chapter Five.

³³² See the following. (1) Aristotle, *Physics*, III:4, 203a4ff, 'Some, as the Pythagoreans and Plato, make the infinite [or 'the Unlimited'] a principle as a substance in its own right, and not as an accident of some other thing.' (2) Aristotle, *Metaphysics*, I:5, 986a14ff, 'Evidently, then, these thinkers also consider that number is the principle both as matter for things and as forming their modifications and states, and hold that the elements of number are the even and the odd, and of these the former is unlimited, and the latter limited... Other members of the same school say there are ten principles, which they arrange in two columns of cognates – limit and unlimited, odd and even, one and plurality, right and left, male and female, resting and moving, straight and curved, light and darkness, good and bad, square and oblong.' (3) Aristotle, *Metaphysics*, I:8, 990a5, 'But the causes and the principles which they mention are, as we said, sufficient to act as steps even up to the higher realms of reality, and are more suited to these than to theories about nature. They do not tell us at all, however, how there can be movement if limit and unlimited and odd and even are the only things assumed...' (4) Philolaus, 44 B 1 DK = Diogenes Laertius 8.85, 'Nature in the world-order was fitted together both out of things which are unlimited and out of things which are limiting, both the world-order as a whole and all the things in it.' (5) Philolaus 44 B 2 DK = Stobaeus, *Eclogae*

The Limit limits the Unlimited, or the Indefinite plurality is brought to limit. From these two principles number is generated. Numbers then, are the result of the Limit acting upon the Unlimited.³³³ From numbers, geometrical space is generated.³³⁴

This was the reason that for the Pythagoreans, the number ten, the Decad, or Tetraktys, held pre-eminent significance. In fact the Tetraktys was considered of such significance that oaths were said to have been sworn by it.³³⁵ It is the sum of the first four numbers, $1+2+3+4=10$, and forms the cosmic number.³³⁶ The numbers of the Tetraktys

1.21.7a, 'It is necessary that the things that are be all either limiting, or unlimited, or both limiting and unlimited but not in every case unlimited alone. Well then, since it is manifest that they are neither from limiting things alone, nor from unlimited things alone, it is clear then that the world-order and the things in it were fitted together from both limiting and unlimited things. Things in their actions also make this clear. For, some of them from limiting (constituents) limit, other from both limiting and unlimited (constituents) both limit and do not limit, others from unlimited (constituents) will be manifestly unlimited.' Both Philolaus fragments are quoted from Huffman, *Philolaus of Croton: Pythagorean and Presocratic*, pp. 93, 101, and are argued by him to be genuine. See Huffman's fuller discussion, pp. 93-113. Also see the discussion regarding the Limit and the Unlimited, in, Huffman, *Philolaus of Croton: Pythagorean and Presocratic*, pp. 37-53; McKirahan, *Philosophy before Socrates*, p. 96; Kahn, *Pythagoras and the Pythagoreans*, pp. 23-25.

³³³ Aristotle, *Metaphysics*, I:5, 986a17-21, '... and hold that the elements of number are the even and the odd, and of these the former is unlimited, and the latter limited; and the 1 proceeds from both of these (for it is both even and odd), and number from the 1; and the whole heaven, as has been said, is numbers.'; Aristotle, *Physics*, III:4, 203a10-15, 'Further, the Pythagoreans identify the infinite [or 'the Unlimited'] with the even. For this, they say, when it is cut off and shut in by the odd [or 'when this is surrounded and limited by the odd'], provides things with the element of infinity [or, 'provides things with the quality of unlimitedness']. An indication of this is what happens with numbers. If the gnomons are placed round the one, and without the one, in the one construction the figure that results is always different, in the other it is always the same.' Also, see the discussion in, McKirahan, *Philosophy before Socrates*, p. 96.

³³⁴ Alexander, *In Aristotelis Metaphysica commentaria*, 74.6, 'For they said that numbers and their characteristics follow the places in the heavens, and are proper to them; and that for this reason spatial magnitudes too come into existence at a later stage out of these numbers...'. Quoted from, Huffman, *Philolaus of Croton: Pythagorean and Presocratic*, pp. 284-285.

³³⁵ This Pythagorean oath is recorded in detail by both Iamblichus and Porphyry. Iamblichus, *The Life of Pythagoras*, 28,

'I swear by the discoverer of the Tetraktys,
Which is the spring of all our wisdom,
The perennial root of Nature's fount.'

Porphyry, *The Life of Pythagoras*, 20, '... they [i.e. the Pythagoreans] would swear by the Tetraktys, adjuring Pythagoras as a divine witness, in the words.

I call to witness him who to our souls expressed the
Tetraktys, eternal Nature's fountain-spring.'

The earliest record of this oath in a passage from Sextus Empiricus (c. 150 – 225 AD), possibly following Posidonius (c. 135 – 51 BC), Sextus Empiricus, *Against the Mathematicians*, 7.94-95, 'This number is the first tetraktys, and is called the source of ever flowing nature....' Quoted from, McKirahan, *Philosophy before Socrates*, p. 93. Burkert notes that first part of the oath may be archaic, and the second part not older than Empedocles. For a discussion see, Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 72, 186-187. Kahn, *Pythagoras and the Pythagoreans*, pp. 31-32. Kahn himself notes, 'The doctrine itself must be old, as we can see from the role that the musical ratios and the number 10 play for Philolaus.'

³³⁶ Aristotle, *Metaphysics*, I:5, 986a1ff, 'And all the properties of numbers and scales which they could show to agree with the attributes and parts and the whole arrangement of the heavens, they collected and

(i.e. 1,2,3, and 4) also express the basis for musical harmony, as outlined above. The ratios, $1:2$ = Octave, $2:3$ = Fifth, $3:4$ = Fourth, are all generated from the Tetraktys, and from these basic ratios, the $6:8::9:12$ ratio for the diatonic scale may be derived, as also seen above.³³⁷

This number-cosmology was adopted and developed by Plato in his world picture in the *Timaeus*, which can be understood as a mathematically transformed Orphic theogony, as I shall argue in Chapter Six. Once an abstract theoretical disposition of thought was applied to *mousikê*, the historical result was the Orphic-Pythagorean emphasis on mathematics as the basis for cosmological speculation.

4.4 Platonic Orphism

4.4.1 Plato as an Orphic Philosopher

In Chapter Two, I argued that Plato should be considered as having championed the new literate-philosophical cultural form, pioneered by the Presocratics. Similarly here, Plato should be considered as having championed the new Orphic-philosophical cultural form, pioneered by the Presocratics, and in particular the Pythagoreans.

Not only does Plato himself make explicit references to Orpheus, but implicitly, the basis of much of his philosophy is derived from Orphism, and from the philosophically transformed Orphic-Pythagoreanism.³³⁸

fitted into their scheme; and if there was a gap anywhere, they readily made additions so as to make their whole theory coherent. E.g. as the number 10 is thought to be perfect and to comprise the whole nature of numbers, they said that the bodies which move through the heavens are ten....'

³³⁷ Sextus Empiricus, *Against the Mathematicians*, 7.94-95, 'The tetractys is a certain number, which being composed of the four first numbers produces the most perfect number, ten. For one and two and three and four come to be ten. This number is the first tetractys, and is called the source of ever flowing nature since according to them the entire kosmos is organised according to harmonia, and harmonia is a system of three concords – the fourth, the fifth, and the octave – and the proportions of these three concords are found in the aforementioned four numbers.' Quoted from McKirahan, *Philosophy before Socrates*, p. 93.

³³⁸ That the philosophy of Plato reflects an Orphic-Pythagorean piety, has also been argued by Morgan, *Platonic Piety*. I essentially agree with Morgan's presentation in this work regarding the influence upon Plato of Orphism, Pythagoreanism, and the mystery religions. However, in distinction to Morgan, I argue for a much closer relationship between Dionysian and Orphic religiosities. In addition to this, I think Morgan's association of Apollo with the traditional Homeric religiosity is unhelpful. This led Morgan on one occasion to 'wonder how Plato could so easily endorse' receiving laws for the polis from Apollo, in *Republic*, 469a-470a. See, Morgan, *Platonic Piety*, pp. 106-107. Recognising a synthesis of both Dionysian

4.4.2 Explicit References to Orphism in Plato

There are at least fifteen passages in the Platonic dialogues where Plato makes explicit reference to Orpheus or Orphism.³³⁹

Music was the exemplary art for Orpheus:

Yet further, as I think, the same is true of playing on the flute, and on the harp, and singing to the harp, and rhapsody. You never saw a man with the skill to judge of Olympus, of Thamyras, or of Orpheus ...³⁴⁰

Orpheus inspires the poets:

And from these primary rings, the poets, others are in turn suspended, some attached to this one, some to that, and are filled with inspiration, some by Orpheus, others by Musaeus.³⁴¹

The dramatic figure of Socrates would dearly love to meet Orpheus in the afterlife, along with Musaeus, Hesiod, and Homer, if that were possible:

Put it in this way, How much would one of you give to meet Orpheus and Musaeus, Hesiod and Homer? I am willing to die ten times over if this account is true.³⁴²

Plato has Phaedrus, in his *Symposium* speech, reveal a knowledge of Orpheus' journey to the underworld. Although dramatically, Plato has Phaedrus give an uncharitable reflection on the story:

And yet the gods sent Orpheus, son of Oeagrus, away from Hades empty-handed, and showed him the mere shadow of the woman he had come to seek. Eurydice herself they would not let him take, because he seemed, like the mere minstrel that he was, to be a lukewarm lover...³⁴³

Plato compares the skill of persuading audiences possessed by the sophist Protagoras, with the charming voice of Orpheus:

and Apollonian elements in the Orphic religiosity, as I have argued in Chapter Three, would, in my opinion, help account for this far better than Morgan's own alternative.

³³⁹ This list is primarily indebted to both: (1) The entry under 'Orpheus/Orphic' in the index of Plato's dialogues, compiled by Edward J. Foye, which appears as an appendix to, Hamilton and Cairns (eds.), *Plato: The Collected Dialogues*. Foye, in turn, has based his index on the Abbott-Knight index to Jowett's translation (3rd ed.) of Plato, although completely reworking this for the Hamilton-Cairns edition; (2) A similar compilation of references by Feibleman, in, Feibleman, *Religious Platonism*, pp. 57-59.

³⁴⁰ Plato, *Ion*, 533b.

³⁴¹ Plato, *Ion*, 536b.

³⁴² Plato, *Apology*, 41a.

³⁴³ Plato, *Symposium*, 179d.

Protagoras draws them from every city that he passes through, charming them with his voice like Orpheus, and they follow spellbound...³⁴⁴

Further, Plato has the dramatic figure of Protagoras claim Orpheus as a fellow ancient sophist, who disguised his philosophical sophism under religious rites and prophecy for fear of public antipathy:

Personally, I [i.e. Protagoras] hold that the Sophist's art is an ancient one, but that those who put their hand to it in former times, fearing the odium which it brings, adopted a disguise and worked under cover. Some used poetry as a screen, for instance Homer and Hesiod and Simonides; others religious rites and prophecy, like Orpheus and Musaeus and their school...³⁴⁵

In the *Republic*, Plato has Glaucon speak of the laymen and poets, who,

... produce a bushel of books of Musaeus and Orpheus, the offspring of the Moon and of the Muses, as they affirm, and these books they use in their ritual, and make not only ordinary men but states believe that there really are remissions of sins and purifications for deeds of injustice...³⁴⁶

Later in this dialogue's *myth of Er*, Socrates speaks of the soul of Orpheus being seen in Hades, opting to be reincarnated as a swan. This also evidences Plato's familiarity with the Orphic myth regarding the shunning of Orpheus, and his death at the hands of the Thracian Maenads:

He saw the soul that had been Orpheus', he said, selecting the life of a swan, because from hatred of the tribe of women, owing to his death at their hands, it was unwilling to be conceived and born of a woman.³⁴⁷

Plato favourably refers to the Orphic doctrine that the body is the *tomb* of the soul (as demonstrated in Chapter Three):

For some say that the body is the grave (σῆμα) of the soul which may be thought to be buried in our present life; or again the index of the soul, because the soul gives indications to (σημαίνει) the body; probably the Orphic poets were the inventors of the name, and they were under the impression that the soul is suffering the punishment of sin, and that the body is an enclosure or prison in which the soul is incarcerated, kept safe (σῶμα, σώζεται), as the name σῶμα implies, until the penalty is paid; according to this view, not even a letter of the word need be changed.³⁴⁸

³⁴⁴ Plato, *Protagoras*, 315a.

³⁴⁵ Plato, *Protagoras*, 316d.

³⁴⁶ Plato, *Republic*, 364e.

³⁴⁷ Plato, *Republic*, 620a.

³⁴⁸ Plato, *Cratylus*, 400b-c.

A similar picture to this is told in *Gorgias* 492e-493a, although Orpheus is not explicitly mentioned there.

Plato is also familiar with the Orphic theogonies, as I will further argue in Chapter Six. He specifically mentions Orpheus in connection with such a theogony later in the *Cratylus*:

Well, then, how can we avoid inferring that he who gave the names of Cronus and Rhea to the ancestors of the gods agreed pretty much in the doctrine of Heraclitus? Is the giving of the names of streams to both of them purely accidental? Compare the line in which Homer, and, as I believe, Hesiod also, tells of 'Oceanus, the origin of gods, and mother Tethys.' [Iliad 14.201] And again, Orpheus says that 'The fair river of Oceanus was the first to marry, and he espoused his sister Tethys, who was his mother's daughter.'³⁴⁹

This is further confirmed in the *Philebus*, where the dramatic Socrates speaks of the theogonies that cease at the sixth generation:

"But with the sixth generation," says Orpheus, "cease the rhythmic song."³⁵⁰

And finally, there are four passages in the *Laws* that speak of Orpheus. Plato, through the dramatic voice of the Athenian Stranger, indicates the Orphic way of life as that of an ascetic vegetarianism:

Besides, we remark the persistence of human sacrifice to this day in many quarters, while it is reported, on the other hand, of other peoples that they shrank from tasting even the flesh of oxen, and offered no animals in sacrifice; they honoured their gods with cakes and meal soaked in honey and other such 'pure' sacrifices, but abstained from flesh, counting it criminal to eat it, or to pollute the altars of the gods with blood. Man's life in those days conformed to the rule known as Orphic, universal insistence on vegetarianism, and entire abstention from all that is animal.³⁵¹

Plato has Clinias give the time span for the discoveries of statesmanship to be within a one to two thousand year old period. This contrasts with the tens of thousands of years of the men from the earlier ages. Within this more recent period he locates Orpheus:

As much as to say that we must take the men of those ages to have known nothing of these matters for untold tens of thousands of years. It is only some thousand or two thousand years since they were revealed, partly by Daedalus, partly by Orpheus,

³⁴⁹ Plato, *Cratylus*, 402b.

³⁵⁰ Plato, *Philebus*, 66c.

³⁵¹ Plato, *Laws*, 782c.

partly by Palamedes, music by Marsyas and Olympus, the lyre by Amphion, and various other discoveries by numerous persons...³⁵²

The last two references are to the musicality of the Orpheus figure. The Athenian Stranger provides laws to censor the singing of songs. Only those qualified and authorised composers may write and sing verses. So that,

Their music, and theirs only, shall be free and uncensored, whereas this liberty shall be granted to no one else, and no other citizen shall presume, without the curator's license, to sing an unauthorized air, were it notes more ravishing than those of Thamyras or Orpheus themselves...³⁵³

The poet-musicians of the polis, who are all too inadequate compared with the Divine Muses, are only too fond of,

...provoking the contempt of those of us who, in the phrase of Orpheus, are 'ripe for delight', by this kind of senseless and complicated confusion.³⁵⁴

4.4.3 Plato as the Champion of Orphic-Pythagoreanism

Not only do we discern a familiarity with Orphic lore explicitly within Plato, but implicitly, his own philosophy may be understood as a development of Orphic-Pythagoreanism.

In each of the *Phaedo*, *Gorgias*, and *Republic*, Plato presents an Orphic myth, in a positive light.³⁵⁵ These all concern the continuity of the soul, separated from the body, in an afterlife.³⁵⁶ The myths all teach Orphic body-soul dualism, the Orphic transmigration of souls, as well as the possibility of the soul being liberated from the cycle of reincarnation to return to the Divine. Plato is familiar with the Orphic myth regarding the

³⁵² Plato, *Laws*, 677d.

³⁵³ Plato, *Laws*, 829d-e.

³⁵⁴ Plato, *Laws*, 669d.

³⁵⁵ Morgan has argued for Plato's indebtedness to Orphic and Pythagorean teachings in both the *Phaedo*, and *Republic*. In, Morgan, *Platonic Piety*, pp. 55-79, 100-157. Likewise, Guthrie has argued for the use of Orphic mythology in the *Phaedo*, *Gorgias*, and *Republic*. In, Guthrie, *Orpheus and Greek Religion*, pp. 238-244. Guthrie concludes, 'To sum up, ... we saw reason ... to assign many of the myths of Plato in the main to an Orphic origin, in particular the elaborate eschatologies of the *Phaedo*, *Gorgias*, and *Republic*...', p. 243.

³⁵⁶ Plato, *Phaedo*, 107d – 114d; *Gorgias*, 523a – 526d; *Republic*, 614b – 621d.

origin of man from the Titans, and speaks of our 'Titanic nature' (as indicated in Chapter Three).³⁵⁷

Orphic body-soul dualism is a mainstay of Platonic anthropology. It figures as part of the dialectic arguments of the dramatic *Socrates*.

Is it [i.e. death] simply the release of the soul from the body? Is death nothing more or less than this, the separate condition of the body by itself when it is released from the soul, and the separate condition by itself of the soul when it is released from the body? Is death nothing else than this? No, just that.³⁵⁸

This separable soul, as with the Orphics, is immortal,

Then tell me, what must be present in a body to make it alive? Soul... And the soul does not admit death? No. So soul is immortal? Yes, it is immortal.³⁵⁹

Along with the Orphics, Plato declares that the body is a prison or tomb for the soul.

Every seeker after wisdom knows that up to the time when philosophy takes over his soul is a helpless prisoner, chained hand and foot in the body, compelled to view reality not directly but only through its prison bars...

... without taint of that prison house which now we are encompassed withal, and call a body, fast bound as an oyster in its shell.³⁶⁰

Eschatologically, the soul is caught in a cycle of reincarnation.³⁶¹ To be freed it must undergo a form of purification.³⁶² For Plato this is philosophically transformed upon the basis of mathematics, as I shall argue in Chapter Seven. The purified soul breaks from this cycle and returns back to the Divine from whence it came.

But the soul, the invisible part, which goes away to a place that is, like itself, glorious, pure, and invisible — the true Hades or unseen world — into the presence of the good and wise God ... then it departs to that place which is, like itself, invisible, divine, immortal, and wise, where, on its arrival, happiness awaits it, and release from uncertainty and folly, from fears and uncontrolled desires, and all other human evils, and where as they say of the initiates in the Mysteries, it really spends the rest of its time with God.³⁶³

³⁵⁷ Plato, *Laws*, III: 701c, 'The spectacle of the titanic nature of which our old legends speak is re-enacted; man returns to the old condition of a hell of unending misery.'

³⁵⁸ Plato, *Phaedo*, 64c.

³⁵⁹ Plato, *Phaedo*, 105c-e. See also, *Laws*, 959b, 967d; *Meno*, 81b, 85e; *Phaedo*, 85e, 87, 92, 105; *Phaedrus*, 245c; *Republic*, 608c; *Timaeus*, 41c, 42e, 69c.

³⁶⁰ Plato, *Phaedo*, 82e and *Phaedrus*, 250c. See also, *Phaedo*, 62b, 81.

³⁶¹ Plato, *Laws*, 903d, 904e; *Meno*, 81b; *Phaedo*, 70c, 71e, 81, 113a; *Phaedrus*, 248c; *Republic* 617d; *Timaeus*, 41e, 90e.

³⁶² Plato, *Phaedo*, 67, 82a.

³⁶³ Plato, *Phaedo*, 80d – 81a.

Plato even clearly refers to the 'initiates in the Mysteries' (i.e. Orphism) as a parallel to, and authority for, his own retelling of the afterlife myth.

The Platonic theory of *Recollection*, taught in both the *Meno* and the *Phaedo*,³⁶⁴ relies upon the Orphic doctrine of the soul's pre-existence and origin from the Divine.

The *Phaedrus* contains an allegory of the soul, as a chariot pulled by two horses.³⁶⁵ There Plato refers to an Orphic eschatology³⁶⁶ as the basis for his own philosophical psychology, just as he does in the *Phaedo*, *Gorgias*, and *Republic* myths. In agreement with Pindar, he intimates the three thousand year periods before the soul can be redeemed.³⁶⁷

The *Allegory of the Cave*,³⁶⁸ with its symbol of the Sun, may also be considered as inspired by Orphism. In the *Republic*, the Sun illuminates Being, and is equated with the Good.³⁶⁹ This symbol of the Sun also plays a vital role in Orphic mythology, where Orpheus after his unsuccessful attempt to rescue Eurydice from Hades, worships Apollo as Helios, the Sun, on the mountains of Thrace.

The cosmology of the *Timaeus* can best be understood as a grand Orphic theogony, mathematically transformed in true Orphic-Pythagorean style, as I shall argue in Chapter Six.

Rappe has argued that the dramatic structure of the *Symposium* is based upon the journey of Orpheus to the underworld. Both the Orpheus myth and the *Symposium* are stories concerning love. Socrates functions as a type of Orpheus and Alcibiades as a type of Eurydice. Both Orpheus and Socrates fail in their quest to rescue their beloved.³⁷⁰

Metaphysically, for Plato, the distinction between Being and Becoming is fundamental. He presents us with a metaphysic as to how these two may be synthesised into a cosmic order. This, I propose, can be understood as a *philosophically transformed*

³⁶⁴ Plato, *Meno*, 82b – 85b; *Phaedo*, 73.

³⁶⁵ Plato, *Phaedrus*, 246aff.

³⁶⁶ That Plato uses Orphic and Bacchic themes in the *Phaedrus* myth has been argued by Morgan, *Platonic Piety*, pp. 171-172.

³⁶⁷ Plato, *Phaedrus*, 249a-b.

³⁶⁸ Plato, *Republic*, 514a – 519b.

³⁶⁹ Plato, *Republic*, 507b – 509c.

³⁷⁰ Rappe, *Reading Neoplatonism*, p. 150.

Orphic synthesis between the dual religious motifs of Apollo (correlated with Being) and Dionysus (correlated with Becoming). Plato applies this both at the macrocosmic level of the universe itself, and at the microcosmic level of the human soul with its concomitant epistemology.

Here then, we see that Plato must be set in the context of Orphism if we are to interpret him aright. The proof of this pudding, shall of course be in the eating, reserved until Part Two (Chapters Six and Seven).

4.5 Philosophical Anthropology: The Orphic Soul becomes Rational

4.5.1 The Priority of the Rational in Man for the Presocratics

We have already observed above, that how the Divine was conceived, and how humanity was conceived, took a decidedly rationalist turn in the Presocratic philosophers. The Divine was equated with the newly emphasised abstract theoretical thought. It was a principle of exhaustive rational systematicity, the all-embracing *Logos*, that which gives order to the cosmos.

Concomitant with this, was the newly arisen anthropology of the Orphics. For the Presocratics, the soul itself, or the highest part of the soul in some cases, was identified with abstract theoretical thought. The essence of what it meant to be a human being was *rationality*. Humans were connected with the Divine, in that human rationality formed a part of the Divine *Logos*. If humans could transcend their particularity as isolated individuals, and re-unify their soul with its origin in the Divine, then they could achieve exhaustive rational systematicity, at least in principle.

This was the new way of philosophy pioneered and preached by the Presocratic philosophers. Of course, the textual evidence that we possess concerning these early philosopher-pioneers is rather minimal at best. As evidenced above, they were certainly leading us in this new direction. It is not until we read the fuller and clearer textual

evidence of Plato, anticipated by the Pythagoreans, that we discern philosophical Orphism being unequivocally championed, rather than merely pioneered.

In the Presocratics the Orphic soul has been philosophically transformed, in that the Orphic soul is now *rational*.

4.5.2 The Pythagorean Rational Soul

Within the tradition of pre-Platonic Orphic-Pythagorean psychology, we find that the soul is identified with reason.

And there are four principles of the rational animal, just as Philolaus says in *On Nature*: brain, heart, navel, genitals. The head [is the seat] of intellect, the heart of life and sensation, the navel of rooting and first growth, the genitals of the sowing of seed and generation. The brain [contains] the origin of man [or, 'the ruling factor of man'], the heart the origin of animals, the navel the origin of plants, the genitals the origin of all (living things). For all things both flourish and grow from seed.³⁷¹

Reason alone is that faculty by which we really come to knowledge.

As a result Anaxagoras said that reason in general was the criterion. The Pythagoreans said that reason was the criterion, but not reason in general, but rather the reason that arises from the mathematical sciences, just as Philolaus also said, and since it is concerned with the nature of wholes [they said that] it has a certain kinship to that nature, since it is the nature of like to be apprehended by like.³⁷²

The Orphic purification rites, when applied to the rational soul, become transformed from merely dietary asceticism into *intellectual* purification. This requires the study of the newly arisen abstract theoretical disciplines. Given their abstract nature, these disciplines are in content non-concrete, or theoretical. In this way, the soul, the intellect, is ontologically suited to the study of these objects of theoretical thought. It is especially the theoretical discipline of *mathematics* that for the Pythagoreans epitomised the basis of the cosmos, and thus was most worthy of intellectual attention.

³⁷¹ Philolaus, 44 B 13 = *Theologumena arithmeticae* 25.17. Quoted from, Huffman, *Philolaus of Croton: Pythagorean and Presocratic*, p. 307. Huffman argues for the authenticity of this fragment, pp. 307-314.

³⁷² Sextus Empiricus, *Against the Mathematicians*, 7.92. Quoted from, Huffman, *Philolaus of Croton: Pythagorean and Presocratic*, p. 199. For a discussion of this passage see, Huffman, *Philolaus of Croton: Pythagorean and Presocratic*, pp. 199-201.

4.5.3 Reason as the Highest and Immortal part of the Soul in Plato

Plato carries on this Presocratic and Pythagorean tradition of identifying the essence of the soul with rationality.

In the *Phaedo*, Plato has the figure of Socrates present us with a picture of the soul, in which the soul itself is identified with that which is immortal, invisible, divine, and *rational*.

Then [the soul] departs to that place which is, like itself, invisible, divine, immortal, and rational...³⁷³

One of the primary dramatic themes in the *Phaedo* is that the soul is immortal. Plato presents four such arguments in order to support this claim.³⁷⁴

The third argument for immortality, contends that the Divine is simple (i.e. incomposite) and thus unable to be broken and dispersed into parts. As the soul is most like the Divine, then the soul also must be considered as simple (or incomposite), and so it also cannot be broken and dispersed into parts.³⁷⁵ The soul is contrasted with the bodily desires, and appetites, for such things as food, clothing, or pains and pleasures.³⁷⁶ The soul, in the *Phaedo*, is presented to us as a simple, undivided thing, the essence of which is rationality. It is not until the later dialogues, such as the *Republic*, and the *Timaeus*, that Plato elaborates upon this basic psychology.

In the *Republic*, Plato presents to us a tripartite soul, i.e. that the soul can in fact be understood as consisting of three parts. These three parts are: (1) the intellectual or rational part (*to logistikon*),³⁷⁷ sometimes called the thinking or understanding part (*noos*),³⁷⁸ which loves learning and wisdom;³⁷⁹ (2) the spirited part (*to thumoeides*),³⁸⁰

³⁷³ Plato, *Phaedo*, 81a.

³⁷⁴ Plato, *Phaedo*, 70dff, 'Argument from Opposites'; 72eff, 'Argument from Recollection'; 78bff, 'Argument from Affinity with the Divine'; 105eff, 'Argument from the Forms'.

³⁷⁵ Plato, *Phaedo*, 78bff.

³⁷⁶ Plato, *Phaedo*, 64d – 64c.

³⁷⁷ Plato, *Republic*, 439d.

³⁷⁸ Plato, *Republic*, 490b, 508c, 511d.

³⁷⁹ Plato, *Republic*, 581b.

³⁸⁰ Plato, *Republic*, 441a.

which loves winning and honour;³⁸¹ (3) the desiring or appetitive part (*to epithumetikon*),³⁸² which loves money and profit.³⁸³

The highest part of the tripartite soul is the rational part, and this part must have primacy and rule over the other parts of the soul,

Does it not belong to the rational part to rule, being wise and exercising forethought in behalf of the entire soul... Assuredly.³⁸⁴

Each of the other parts, in turn, must act in accordance with their own proper *telos* (goal), if the soul is to be harmonious and just.³⁸⁵ Plato then, gives primacy to the rational part in man, identified here as the highest part of the soul.

The *Timaeus* confirms this account, even more graphically. Here Plato distinguishes between the immortal and mortal parts of the soul.

And they [i.e. the offspring of the Divine artificer], imitating him, received from him the immortal principle of the soul, and around this they proceeded to fashion a mortal body, and made it to be the vehicle of the soul, and constructed within the body a soul of another nature which was mortal...³⁸⁶

These parts of the soul are separated by being located in different parts of the body. The immortal part of the soul, the rational or intellectual, is located in the head. The mortal part of the soul is in turn divided into two parts corresponding to the divisions in the *Republic*. The spirited part is located in the chest, and is separated from the rational immortal part by the neck. The appetitive part is located in the belly, and is separated from the spirited part by the midriff.³⁸⁷

This rational immortal part of the soul, connects us to the Divine, and is established by the Divine in us, as our sovereign and director.

And we should consider that God gave the sovereign part of the human soul to be the divinity of each one, being that part which, as we say, dwells at the top of the body,

³⁸¹ Plato, *Republic*, 581a-b.

³⁸² Plato, *Republic*, 439d.

³⁸³ Plato, *Republic*, 580d – 581a.

³⁸⁴ Plato, *Republic*, 441e.

³⁸⁵ Plato, *Republic*, 441d-e.

³⁸⁶ Plato, *Timaeus*, 69c.

³⁸⁷ Plato, *Timaeus*, 69c – 70a, 90a-d.

and inasmuch as we are a plant not of an earthly but of a heavenly growth, raises us from earth to our kindred who are in heaven.³⁸⁸

Prima facie, it may appear to the interpreter that these two pictures contradict — the simple undivided rational essence in the *Phaedo*, and the tripartite soul in the *Republic* and *Timaeus*. To overcome this, it may be suggested that the *Phaedo* account is a more historically Socratic view, and that the *Republic-Timaeus* represents the developed Platonic view.

However, I do not consider this to be a viable option textually. The *Phaedo* itself contains much detailed work on the nature of the Forms, which certainly express the philosophical work of a *mature* Plato. The dramatic role played by Socrates in the Platonic dialogues is really never one of merely mimicking the historical Socrates. Rather, the dramatic Socrates always functions in the context of a broader, often implicit, Platonic background.

Given this way of reading the dialogues, I suggest a slightly more subtle approach to harmonising the *Phaedo*. Namely, we should acknowledge that the dramatic purpose and scope of the *Phaedo* is to establish, by argument, that there is an *immortal* soul. This is different to the purpose and scope of the passages on tripartition in the *Republic* and *Timaeus*. In these latter, a more detailed psychology is being developed, in terms of ethics (i.e. justice), and in terms of cosmology. Recognising this difference in scope, then, should enable us to interpret the *Phaedo* discussion as limited to the *immortal* essence of the soul. Only in later dialogues do we learn this is spatially separate, and genealogically separate to any *mortal* part of the soul, coming from the Divine artificer himself.

The *Phaedo* completely concords with the *Timaeus*, in declaring this *immortal essence* of the soul to be Divine. In the *Phaedo*, it was because of its Divinity that it was simple. Taking the *Phaedo's* immortal soul to be simple in no way conflicts with the immortal soul, or rather *part* of the soul, spoken of in the *Republic* or the *Timaeus*.

The *Phaedo* speaks of such things as appetite as belonging to the body, whereas the *Republic* and *Timaeus* associate these with the mortal soul. We need only understand this as an expanded description of the human psychology, resulting from the different

³⁸⁸ Plato, *Timaeus*, 90a.

purposes of the passages under discussion. In the *Phaedo*, what is immortal is contrasted with what is mortal and bodily. In the *Republic* and *Timaeus*, the contrast involves aspects of the soul (i.e. that which moves us). Such that what was merely described as bodily in the *Phaedo*, can now more sophisticatedly be described as a mortal part of soul, or that part of soul that is directed toward the body. The difference between *Phaedo* and *Republic-Timaeus*, therefore, is merely one of dramatic purpose, and therefore only of sophistication.³⁸⁹

The idea of the primacy of the intellect in Plato results from these two important cultural shifts, namely, the Orphic shift in identifying the essence of humans with their soul, which is Divine; and the literate-philosophical shift in transforming the nature of the Divine to be an all-encompassing rationality. As the Divine is rational, so too must the soul (or highest part of the soul) be rational.

What we have, therefore, is the Orphic soul made rational. Not only has the Orphic bard become a philosopher, but also his soul has become his faculty for rational theoretical thought.

4.5.4 The Way of Philosophy as the Purification of the Soul in Plato

Having seen how Plato transformed the Orphic anthropology, it remains for us to outline briefly how the Orphic eschatology was also transformed.

This will be covered in more depth as the subject of Chapter Seven, so I shall only highlight the main points in this section, which will naturally lead on to the discussion there.

For the Orphics, humanity was held in bondage to bodily reincarnation due to an original injustice. Salvation meant being liberated from this cycle of rebirth. The eschatological hope of the Orphics was that by means of purification (*katharsis*), the soul might be cleansed from this original corruption, and freed to return back to the Divine.

It was this Orphic-Pythagorean eschatology that was philosophically transformed by Plato. As the immortal soul in essence is rational, and comes from the Divine which is

³⁸⁹ For another argument harmonising Plato's account of the soul, particularly in relation to the *Republic* and the *Timaeus*, see, Szlezak, *Reading Plato*, pp. 72-75.

rational, it must follow that to release the soul completely from the body means releasing the soul from all irrationality. In this way the soul may unify itself with universal rationality once again.

We may attain unto this Divine immortality, or release from the bodily state, by way of the *rationaly transformed* Orphic purifications. This involves the pursuit of knowledge or wisdom, by living as a philosopher or lover of wisdom.

But he who has been earnest in the love of knowledge and of true wisdom, and has exercised his intellect more than any other part of him, must have thoughts immortal and divine, if he attain truth, and in so far as human nature is capable of sharing in immortality, he must altogether be immortal, and since he is ever cherishing the divine power and has divinity within him in perfect order, he will be singularly happy.³⁹⁰

The primary dialogue that speaks of this purification is the *Phaedo*. Discussion of this will be left until Chapter Seven. Suffice it to say here, that for Plato the study of the abstract theoretical sciences constitutes the way that the rational soul is purified. In particular, through the study of *mathematics* one may be initiated into the Orphic-philosophical rites. The soul of the philosopher has the hope of liberating itself back to the Divine. But the rest of humanity is doomed, with its misguided focus on the bodily, the sensual, to its recurring bondage in that world of Becoming.

It is the philosopher who knows true Being, and he ever strives toward the Divine, the Universal Reason and source of Being.

³⁹⁰ Plato, *Timaeus*, 90b-c.

Part One: Literacy, and the Rise of the Orphic Philosopher

Chapter Five:

Mathematics in the Making

But we may take it that whenever Greeks acquire anything from foreigners,
they finally carry it to a higher perfection.

— Plato, *Epinomis*, 988d

In this chapter, I investigate the *mathematical* shift in ancient Greece from concrete counting and measuring to an abstract theoretical science of deductive geometry. I compare pre-philosophical Egyptian and Babylonian mathematics with philosophical Greek mathematics.

Pre-philosophical cultures relied upon a concrete, non-abstract, understanding of the arts of counting and measuring. These were integrated and woven into the fabric of their society. They did not function as a separate theoretical science, with a proper abstract domain of their own. This is in stark contrast to the shape that mathematics took in classical Greece. Here were realised, for the first time in western history, the conditions for the possibility of a theoretical science of mathematics. This science took the form of an axiomatic deductive geometry, and was exemplified in the *Elements* of Euclid.

The development of such a deductive geometry resulted from the cultural shifts occurring within classical Greece, namely, the shift from oral-mythical to literate-philosophical ways of life discussed in Chapter Two, and the Orphic-philosophical religious shift discussed in Chapters Three and Four. This also provided a foundation for the Platonic cosmogony, with its reliance upon geometrical construction, discussed in Chapter Six.

5.1 Mathematical Practice among the Ancient Babylonian and Egyptian Cultures

5.1.1 Ambiguity of Mathematics

In discussing the history of mathematics, one can sometimes be misled by the use of the single term ‘mathematics’. It may suggest that what was practised in ancient Egypt and Babylon was to a greater or lesser extent a single monolithic activity, along with what was practised by Descartes and Newton, and along with what is practised in academic departments of mathematics today.

This *monolithic assumption*, as we may describe it, was once popular in enlightenment thought. Today it is simply untenable to make this assumption, with the advent of modern scholarship and a far more self-critical approach to cultural anthropology. Our single term ‘mathematics’ embodies very many shapes and forms that reflect the ideas and ways of life of the cultures from which it grows. This is true both in the history of western culture, and in other cultures that have had little or no contact with the west.

For example, much has been written in recent years concerning the difference between the modern and ancient concepts of what is called *number*. It has been argued that in the ancient Greek context, it is potentially misleading to use the modern English term ‘number’ to translate the ancient Greek term ‘arithmos’. The reason for this, it is claimed, is that the modern concept of *number* involves a higher order of abstraction that was not contained in the ancient concept of *arithmos*.³⁹¹

I argued in Chapter Two that the shift from orality to literacy in ancient Greece went hand in hand with the advent of philosophy as a way of life. If this argument is basically correct, then this will radically effect the way we examine non-Hellenised cultures, and especially cultures prior to the advent of philosophy (c. 600 BC in Greece). In particular, we will have to examine these cultures as *oral cultures*, with all that the

³⁹¹ For a discussion on this see, Pritchard, *Plato’s Philosophy of Mathematics*, Ch.2; And, Klein, *Greek Mathematical Thought and the Origin of Algebra*.

word ‘oral’ suggests in light of Chapter Two. We should not read into their non-philosophical ways of life the categories and thought patterns of a philosophical culture.

This is especially important when it comes to mathematics. If by the term ‘mathematics’ we mean a typical, modern, dictionary definition of ‘abstract science of space and number’,³⁹² then we must conclude that the ancient pre-philosophical cultures simply did *not* practice mathematics. They simply did not intellectually reflect upon their experience and activities in terms of abstract categories, as I argued in Chapter Two. They possessed no abstract theoretical disciplines, such as modern mathematics purports to be. But they certainly did command practices and activities that historians and philosophers of mathematics would perhaps desire to call *mathematics*, or at least include these activities in the line-up of mathematical history.

It is with this strong caveat in mind that I shall analyse these pre-philosophical cultural practices, ambiguously described as *mathematical*.

5.1.2 Egypt and Babylon as Precursors to Greece

The ancient Greeks generally acknowledged the Egyptian and Babylonian empires as their primary mathematical influences.³⁹³ This is confirmed by modern mathematical

³⁹² See, *The Oxford English Dictionary* entry under ‘mathematics’, for example.

³⁹³ An example of early Greek understanding that regards Egypt as a mathematical predecessor is in Herodotus (c. 490 – 420 BC): ‘Sesostris also, they declared, made a division of the soil of Egypt among the inhabitants, assigning square plots of ground of equal size to all, and obtaining his chief revenue from the rent which the holders were required to pay him year by year. If the river carried away any portion of a man’s lot, he appeared before the king, and related what had happened; upon which the king sent persons to examine, and determine by measurement the exact extent of the loss; and thenceforth only such a rent was demanded of him as was proportionate to the reduced size of his land. From this practice, I think, geometry first came to be known in Egypt, whence it passed into Greece.’ Herodotus, *Histories*, II ‘Euterpe’, 109, Rawlinson translation. This attitude was still prevalent 700 years later, as is evidenced by the Neoplatonists Iamblichus (c. AD 245 – 326) and Porphyry (c. AD 232 – 305), who likewise considered Greece to be mathematically indebted to Egypt, along with Babylon. Cf. Iamblichus, *The Life of Pythagoras*, 29: ‘It is said that while he [i.e. Pythagoras] was in Egypt he very much applied himself to geometry. For the Egyptian life bristles with geometrical problems since, from remote periods, when the Gods were fabulously said to have reigned in Egypt, on account of the rising and falling of Nile, the skilful have been compelled to measure all the Egyptian land which they cultivated, where from indeed the science’s name, geometry (i.e., “earth measure”), was derived. Besides, the Egyptians studied the theories of the celestial orbs, in which Pythagoras also was skilled. All theorems about lines also seem to have been derived from that country. All that relates to numbers and computation is said to have been discovered in Phoenicia. The theorems about the heavenly bodies have by some been referred to the Egyptians and Chaldeans in common. Whatever Pythagoras received, however, he developed further, he arranged them for learners, and personally demonstrated them with perspicuity and elegance.’ Also, Porphyry, *The Life of Pythagoras*, 6, ‘As to his knowledge, it is said that he learned the mathematical sciences from the Egyptians, Chaldeans,

historians who also arrive at the same conclusion, albeit not entirely independently of these ancient sources.³⁹⁴ For these reasons, it is appropriate to focus upon these two cultures as the mathematical predecessors of Greece.

I begin with the thesis that a philosophical worldview first arose in Greece c. 600 BC, and because of this we should not expect to discover a theoretical mathematical practice in Egypt or Babylon prior to this time. This thesis is remarkably confirmed, I believe, when we examine the textual and archaeological evidence.

This evidence reveals that these two pre-philosophical cultures relied upon a concrete, non-abstract, understanding of the arts of counting and measuring. These arts were integrated and woven into the fabric of their society. They did not function as a separate theoretical science, with a proper abstract domain of their own.

5.1.3 Egyptian Mathematics

In the extant Egyptian papyri, we observe cases of the area of plane figures being calculated. Within these many examples, however, we do not encounter a set of general or abstract formulae to calculate particular sorts of plane figures. Instead, we discover a series of particular concrete examples, actual concrete cases, with specified measurements that are to be solved.

The Moscow Mathematical Papyrus (MMP) serves as a paradigmatic case. Problem 6 of the MMP concerns calculating the sides of a rectangle with a given area. The scribe

and Phoenicians; for of old the Egyptians excelled in geometry, the Phoenicians in numbers and proportions, and the Chaldeans in astronomical theorems, divine rites, and worship of the Gods; other secrets concerning the course of life he received and learned from the Magi.' According to Burkert the belief that it was Pythagoras who introduced the mathematical sciences into Greece was a Neopythagorean and Neoplatonic tradition from late antiquity. Burkert, *Lore and Science in Ancient Pythagoreanism*, pp. 406-408; cf. Kahn, *Pythagoras and the Pythagoreans*, p. 111. However, Burkert notes that the connection between Pythagoras and the Greek mathematical sciences extends back to the time of Hecataeus of Abdera (fl. c. 4th c. BC) — cf. Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 407. Leaving aside the question of the role of Pythagoras, however, we see that the Neoplatonic tradition, in keeping with Herodotus, acknowledges the formative influence of Egypt, and Babylon upon Greek mathematical development.

³⁹⁴ So, for example, Maziarz and Greenwood, *Greek Mathematical Philosophy*, p. 4, 'This store of [mathematical] knowledge gradually found its way into the Greek world, especially when the Ionians established regular contacts with Babylon and Egypt, after Thrasybulus of Miletus concluded an alliance with the King of the Lydians in the seventh century B.C.'

has also drawn a diagram of a rectangle with the measurements of the sides and area to accompany the explanation.

Method of calculating a rectangle.

If it is said to thee, a rectangle of 12 in the area [is] $\frac{1}{2} \frac{1}{4}$ of the length for the breadth. Calculate $\frac{1}{2} \frac{1}{4}$ until you get 1. Result $1 \frac{1}{3}$.

Reckon with these 12, $1 \frac{1}{3}$ times. Result 16. Calculate thou its angle [square root]. Result 4 for the length.

$\frac{1}{2} \frac{1}{4}$ is 3 for the breadth.³⁹⁵

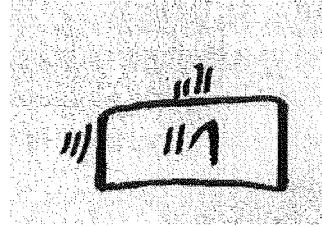


Figure 5

This example bears close resemblance with the others found in the papyri. It contains very specific measurements that are provided in the text. The reader is challenged to examine a particular concrete case. They are not requested to deal with rectangles, triangles, and other geometrical figures, considered as abstract entities in themselves — entities that possess lengths, breadths, and areas, abstracted out from particular instances.

5.1.4 Babylonian Mathematics

No difference may be ascertained in the Babylonian sources, compared with the Egyptian papyri. For example, Text AO 8862 from Senkereh, of the Hammurabi dynasty, preserves another area problem.

³⁹⁵ From, Gillings, *Mathematics in the Time of the Pharaohs*, p. 137.

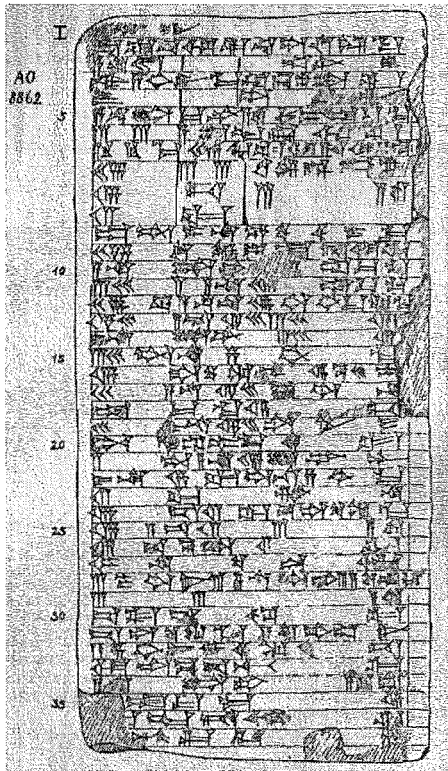


Figure 6

Length, width. I have multiplied length and width, thus obtaining the area. Then I added to the area, the excess of the length over the width: 3,3 (i.e. 183 was the result). Moreover, I have added length and width: 27. Required length, width and area.

(given:) 27 and 3,3, the sums
(result:) 15 length 3,0 area
12 width

One follows this method:

$$27 + 3,3 = 3,30$$

$$2 + 27 = 29.$$

Take one half of 29 (this gives 14;30).

$$14,30 \times 14,30 = 3,30;15$$

$$3,30;15 - 3,30 = 0;15.$$

The square root of 0;15 is 0;30.

$$14,30 + 0;30 = 15 \text{ length}$$

$$14,30 - 0;30 = 14 \text{ width}$$

Subtract 2, which has been added to 27, from 14, the width. 12 is the actual width.

I have multiplied 15 length by 12 width.

$$15 \times 12 = 3,0 \text{ area.}$$

$$15 - 12 = 3$$

$$3,0 + 3 = 3,3.^{396}$$

Once again, we observe that lengths and areas are all solved entirely within a concrete context, and all in a considerably thoughtful manner. Under purview is a very specific concrete area, not an abstracted idea of *area* as a non-particular, or non-concrete concept.

We should not hastily assume, however, that these ancients continued to reinvent the wheel in each instance. The writer of the above text clearly demonstrates that he knows the *practical method* or *procedure* to solve an area of a rectangle. He states, ‘I have multiplied length and width, thus obtaining the area’. He knows his procedure very well. But he does not consider that his procedure provides him with an abstract formulae, or definition of *rectangularity*. He reveals that even in stating the procedure, he has a very particular concrete figure in view. This *concrete* figure is to be operated upon, *not* rectangularity in general.

³⁹⁶ From, van der Waerden, *Science Awakening*, p. 63.

In fact, to not initially establish *any* procedural method is quite indicative. It appears clear that the original authors of these texts were acquainted with such procedures. Yet they considered it neither necessary, nor appropriate, to affirm these in their working. This reveals a fundamentally different approach to their arts of counting and measuring, compared with later philosophical Greek mathematics, and with contemporary mathematics. They were not interested in constructing timeless abstract proofs only to later apply these to time-bound particular instances. Rather, they were interested in the time-bound concrete instances, the *actors making actions*, which epitomises an oral-mythical way of life.

The closest we come to any independent *general* procedural method being expressed, would be instanced in text AO 6770.

Length and width as much as area; let them be equal.
 You in your procedure,
 The product you take twice.
 From this you subtract 1.
 You form the reciprocal.
 With the product that you have taken
 You multiply and
 The width it gives you.³⁹⁷

A similarity may be observed with the opening lines of AO 8862. It explains the *method* that the author employs, or in this case instructs to be taken. What appears unique about this text is that the author occasions no reference to any particular measurements of a certain figure under purview. This example, out of dozens, contains the only instance of an independent procedural method, something only hinted at in AO 8862.

It is important to note, once again, what we do not discover. We do not encounter an abstract definition of rectangularity. The scribe expresses a very concrete *method*, a practical activity that must be employed, not a timeless truth to be intellectually considered. He does not endeavour to provide an abstract definition or theorem regarding rectangles. He does not attempt to *prove* his methodology, as would later philosophical Greek axiomatic-deductive geometry.

³⁹⁷ From, van der Waerden, *Science Awakening*, p. 74.

This further confirms that general procedural methods were indeed known, and that these always revolved around the concrete — actors making actions in particular concrete instances. Even when, as in the case of AO 6770, a particular figure is not measured in the statement itself.

Further examples to confirm my interpretation of the pre-philosophical arts of counting and measuring could be multiplied.³⁹⁸ The interpretation I offer here is also adopted by many modern investigators in the field of mathematical history and philosophy, namely, that ancient Egyptian and Babylonian mathematics was essentially concrete, not abstract.³⁹⁹

³⁹⁸ To examine more of these here, however, would divert from the main argument.

³⁹⁹ See for example, Kline, *Mathematical Thought*, pp. 3, 14, 22, 'Mathematics as an organised, independent, and reasoned discipline did not exist before the classical Greeks of the period from 600 to 300 B.C. entered upon the scene. ... The concept of proof, the notion of a logical structure based on principles warranting acceptance on one ground or another, and the consideration of such questions as under what conditions solutions to problems can exist, are not found in Babylonian mathematics. ... [In Egyptian and Babylonian mathematics] There was almost no symbolism, hardly any conscious thought about abstractions, no formulation of general methodology, and no concept of proof or even of plausible arguments that might convince one of the correctness of a procedure or formula. There was, in fact, no conception of any kind of theoretical science. Apart from a few incidental results in Babylonia, mathematics in the two civilisations was not a distinct discipline, nor was it pursued for its own sake. It was a tool in the form of disconnected, simple rules which answered questions arising in the daily life of the people.' Despite the above, Kline, in his appraisal of ancient Egyptian and Babylonian mathematics in *Mathematical Thought*, goes on to say these cultures had such things as algebraic techniques, something that relies upon a quite abstract and theoretical understanding of number. This, surely, is an unwarranted anachronism if Kline's above comments are to be taken seriously. See also, Maziarz and Greenwood, *Greek Mathematical Philosophy*, p. 4, 'But though our knowledge of these ancient cultures has been increased considerably in recent years, we do not find in them a deliberate or conscious effort to develop for their own sake the mathematical facts and scientific observations which supported their practical needs and religious views. For example, the Babylonians do not seem to have been interested in the rational explanation of eclipses, their discoveries being used only for astrological purposes. The Egyptians do not appear to have thought of a theory of numbers; they simply dealt with numerical problems of a practical character. The mathematical relations known to the Eastern scholars were apparently obtained by empirical observations, and there is no proof that they were investigated much further. As the ancients scarcely differentiated their general knowledge from their practical arts, they probably never thought of systematising the theoretical aspects of the materials they had patiently accumulated in the course of the centuries.' Of course, in reaction to this, I would argue that the reason these ancients were not interested in a 'rational explanation' or 'never thought of systematising the theoretical aspects', was because as a non-philosophical culture they simply did not think or act in this way. Alas, Maziarz and Greenwood, in my opinion, fall into the trap of anachronistically reading back into the ancient oral-mythical situation ways of life that are specific only to later literate-philosophical cultures.

5.2 The Shift Towards the Mathematical Practice of a Philosophical Culture

5.2.1 Mathematical Abstraction among the Presocratics

We encounter quite a remarkable difference when we turn our attention from pre-philosophical Egyptian and Babylonian arts of counting and measuring, and examine Greek mathematics after the advent of philosophy.

As argued in Chapter Two, the Presocratic philosophers pioneered a new abstract mindset. Among the very first of these Presocratics, namely, Thales of Miletus, in Ionia (*fl. c.* 585 BC), we already see evidence of a shift towards an abstract approach to mathematics.⁴⁰⁰

Early in the archaic period, Ionia functioned as the hub where the civilisations of the ancient near east were brought into contact with Greece. Thrasybulus of Miletus made an alliance with Lydia in the 7th c. BC.⁴⁰¹ This brought Greece into a stronger communion with the Babylonian and Egyptian empires.

The Greeks established a trading station at Naucratis, Egypt, during the reign of Psammetichus (663 – 609 BC), and received a trade monopoly in Egypt under Amasis (569 – 525 BC). This enabled the Greeks to form intellectual contacts, and travel to Egypt, in order to further study.⁴⁰²

One of those who benefited from such a sojourn in Egypt was Thales. Proclus reports that Thales visited Egypt and from there brought back the art of geometry to the Greeks.⁴⁰³ It is reported by Herodotus that Thales correctly predicted an eclipse of the sun

⁴⁰⁰ For a further and more detailed argument that Thales pioneered a theoretical approach to mathematics in ancient Greece, see, O'Grady, *Thales of Miletus*, pp. 191-221.

⁴⁰¹ Maziarz and Greenwood, *Greek Mathematical Philosophy*, p. 4, as previously noted.

⁴⁰² See, van der Waerden, *Science Awakening*, p. 83; Maziarz and Greenwood, *Greek Mathematical Philosophy*, p. 5.

⁴⁰³ Proclus, *A Commentary on the First Book of Euclid's Elements*, (Morrow trans.), p. 52. Proclus stated, 'Thales who had travelled to Egypt, was the first to introduce this science [i.e. geometry] into Greece.'

for the Ionians.⁴⁰⁴ This event, if accepted as historically accurate, might even suggest that Thales was also familiar with Assyrian and Babylonian methods of astronomy.⁴⁰⁵

However, the ancient testimonia indicate that Thales did not just repeat the pre-philosophical mathematical enterprises of Egypt and Mesopotamia, but instead began a process of restructuring this ancient lore upon a more theoretical basis.

Proclus states that,

[Thales] discovered many propositions himself, and he communicated to his successors the principles of many others, his method being in some cases more abstract, in other more empirical.⁴⁰⁶

⁴⁰⁴ See, Herodotus, *Histories*, I “Clio”, 74. He stated, ‘... just as the battle was growing warm, day was on a sudden changed into night. This event had been foretold by Thales, the Milesian, who forewarned the Ionians of it, fixing for it the very year in which it actually took place.’ Rawlinson translation. This prediction is also testified to by Xenophanes, 21 B 19 DK. Van der Waerden, Heath, and O’Grady, all date this eclipse to the year 585 BC. See, van der Waerden, *Science Awakening*, p. 86; Heath, *A History of Greek Mathematics*, Vol.1, p. 137; O’Grady, *Thales of Miletus*, p. 126.

⁴⁰⁵ For authors who accept the historicity of the Thales prediction, see, van der Waerden, *Science Awakening*, pp. 86-87; Heath, *A History of Greek Mathematics*, Vol.1, pp. 137-139; O’Grady, *Thales of Miletus*, pp. 126-177. Nevertheless, the historicity of this alleged prediction by Thales has been called into question by some. James Longrigg, for example, cites the work of O. Neugebauer as indicating that the ancient Babylonians did not possess a theory for predicting a solar eclipse. Neugebauer stated, ‘... there exists no cycle for solar eclipses visible at a given place; all modern cycles concern the earth as a whole. No Babylonian theory for predicting a solar eclipse existed at 600 B.C., as one can see from the very unsatisfactory situation 400 years later, nor did the Babylonians ever develop any theory which took the influence of geographical latitude into account.’ (From, Neugebauer, O. *The Exact Sciences In Antiquity*, p. 142. Quoted in, Longrigg, James, entry for “Thales”, in, Gillispie, (chief ed.), *Dictionary of Scientific Biography*, Vol.XIII, p. 296). Longrigg goes on to suggest that either the alleged prediction by Thales was apocryphal, or that Thales just made a lucky guess. He states, ‘Accordingly it must be assumed that if Thales did predict the eclipse he made an extremely lucky guess and did not do so upon a scientific basis, since he had no conception of geographical latitude and no means of determining whether a solar eclipse would be visible in a particular locality. He could only have said that an eclipse was possible somewhere at some time in the (chronological) year that ended 585 B.C. But a more likely explanation seems to be simply that Thales happened to be the *savant* around at the time when this striking astronomical phenomenon occurred and the assumption was made that as *savant* he *must* have been able to predict it.’ In, Gillispie, (chief ed.), *Dictionary of Scientific Biography*, Vol.XIII, p. 296. For Longrigg’s complete entry for “Thales”, see, pp. 295-298. If Longrigg’s assessment is correct, then Herodotus’ testimony would no longer count as reliable evidence to suggest Thales had a familiarity with Assyrian and Babylonian astronomy. However, in her recent study of Thales, Patricia O’Grady suggests, in response to Longrigg and Neugebauer, that there were ancient Babylonian astronomical methods and records available at the time of Thales which would have enabled him to predict this eclipse, namely, the ‘lunar eclipse-solar eclipse period of 23½ months’. O’Grady considers that this method has previously been overlooked, but if taken into account would provide reliable evidence for a means of solar prediction which Thales may have employed. See, O’Grady, *Thales of Miletus*, pp. 126-177.

⁴⁰⁶ Proclus, *A Commentary on the First Book of Euclid’s Elements*. Quotation reprinted in, Maziarz and Greenwood, *Greek Mathematical Philosophy*, p. 7. Cf. Morrow trans., p. 52.

To this we might add the testimony of Plutarch. In commenting upon the Seven Sages, among whom Thales was numbered, he states,

[Thales] was apparently the only one of these [i.e. the Seven Sages] whose wisdom stepped, in speculation, beyond the limits of practical utility: the rest acquired the reputation of wisdom in politics.⁴⁰⁷

Proclus attributes at least four mathematical discoveries to Thales.

- (1) He is 'said to have been the first to demonstrate that the circle is bisected by the diameter.'⁴⁰⁸
- (2) He 'was the first to notice and assert that in every isosceles the angles at the base are equal, though in somewhat archaic fashion he called the equal angles similar.'⁴⁰⁹
- (3) '... when two straight lines cut one another, their vertical angles are equal. It was first discovered by Thales, Eudemus says, but was thought worthy of a scientific demonstration only with the author of the *Elements*.'⁴¹⁰
- (4) That he knew of the congruence between two triangles having two angles and a side respectively equal — '... but Eudemus in his history of geometry attributes the theorem itself to Thales, saying that the method by which he is reported to have determined the distance of ships at sea shows that he must have used it.'⁴¹¹

Diogenes Laertius also testifies concerning Thales.

- (5) He knew that sides of similar triangles were proportional to each other.⁴¹²
- (6) He inscribed a right-angled triangle in a circle.⁴¹³

⁴⁰⁷ Plutarch, *Solon*, Ch.3. Quoted by Heath, *A History of Greek Mathematics*, Vol.1, p. 128.

⁴⁰⁸ Proclus, *A Commentary on the First Book of Euclid's Elements*, (Morrow trans.), p. 124.

⁴⁰⁹ Proclus, *A Commentary on the First Book of Euclid's Elements*, (Morrow trans.), p. 195.

⁴¹⁰ Proclus, *A Commentary on the First Book of Euclid's Elements*, (Morrow trans.), p. 233.

⁴¹¹ Proclus, *A Commentary on the First Book of Euclid's Elements*, (Morrow trans.), p. 275.

⁴¹² Diogenes Laertius, *Lives of Eminent Philosophers*, I:1:27. He states, 'Hieronymus informs us that he measured the height of the pyramids by the shadow they cast, taking the observation at the hour when our shadow is of the same length as ourselves.' Both Pliny and Plutarch enlarge on this account. Pliny, *Historia Naturalis*, 36:12 (17), 'Thales discovered how to obtain the height of pyramids and all other similar objects, namely, by measuring the shadow of the object at the time when a body and its shadow are equal in length.'; Plutarch, *Convivium Septem Sapientium*, 2, p. 147 A, '[Niloxenus says to Thales] Among other feats of yours, he (Amasis) was particularly pleased with your measurement of the pyramid, when, without trouble or the assistance of any instrument, you merely set up a stick at the extremity of the shadow cast by the pyramid and, having thus made two triangles by the impact of the sun's rays, you showed that the pyramid has to the stick the same ratio which the shadow has to the shadow.' Quotations for Pliny and Plutarch are from, Heath, *A History of Greek Mathematics*, Vol.1, p. 129. See also, Maziarz and Greenwood, *Greek Mathematical Philosophy*, p. 7. Also, Heath, *A History of Greek Mathematics*, Vol.1, pp. 128-130.

We must, of course, cast a more critical eye on these ancient reports. Proclus testifies that Thales had only *noticed* and *discovered* (2) and (3), even saying that he had not scientifically demonstrated (3). That Thales knew about (4), Proclus informs us, was inferred by Eudemus from the fact that Thales knew how to find the distances of ships from the shore. This suggested to Eudemus that Thales must also have known of the theoretical construct for solving this problem. Likewise with (5), it is inferred that Thales knew of the abstract theory, from his very concrete, and ingenious, activity involving the measurement and comparison of shadows. Regarding (6) it is also difficult to ascertain whether Thales operated upon a theoretical assumption regarding triangles inscribed within circles.⁴¹⁴

The only clear and unequivocal testimony from Proclus, is that Thales *proved* or *demonstrated* (1). Heath objected to this point, however, when he observed that this proposition is not demonstrated in Euclid, as one might expect if such a proof had been available since the time of Thales.⁴¹⁵ This however, at best, functions only as an argument from silence. Van der Waerden makes a telling rebuttal to such an objection, by pointing out that it is quite likely that Eudemus, whom Proclus used as his source, knew not only the results of Thales' mathematics, but also knew their external form, and terminology. As such, we should not be too quick to dismiss such testimony.⁴¹⁶ It would appear reasonable, therefore, given the *weight* of the ancient reports, to presume that Thales began a process of theoretically reconstructing the arts of counting and measuring the Greeks had inherited from the Babylonians and Egyptians.⁴¹⁷

⁴¹³ Diogenes Laertius, *Lives of Eminent Philosophers*, I:1:24-25. He states, '... he was the first to inscribe a right-angled triangle in a circle, whereupon he sacrificed an ox.' See also, van der Waerden, *Science Awakening*, p. 88. Also, Heath, *A History of Greek Mathematics*, Vol.1, pp. 131, 133-137.

⁴¹⁴ For a fuller discussion of these points, see, van der Waerden, *Science Awakening*, pp. 87-90. Also, Maziarz and Greenwood, *Greek Mathematical Philosophy*, pp. 7-9.

⁴¹⁵ See, Heath, *A History of Greek Mathematics*, Vol.1, p. 131. As noted also by van der Waerden, *Science Awakening*, p. 88.

⁴¹⁶ van der Waerden, *Science Awakening*, p. 88.

⁴¹⁷ Both van der Waerden and Maziarz-Greenwood conclude this point. See, van der Waerden, *Science Awakening*, p. 89, '[Thales'] genius receives only now the honor that is due to it, the honor of having developed a logical structure for geometry, of having introduced proof into geometry.' Likewise, in, Maziarz and Greenwood, *Greek Mathematical Philosophy*, p. 9, 'But as reasoning is more important than experiment in these processes, it may be truly said that Thales began the rational tradition which characterizes Greek philosophy and science.' O'Grady also gives a very positive appraisal of Thales' role in helping pioneer a *theoretical* mathematical science in ancient Greece. She states, 'An analysis of Thales's attainments will prove that he advanced beyond the mere solution of individual problems to the

I have already indicated in Chapter Four, how this process of theoretical transformation was carried out within Pythagorean mathematics. Among this school were such mathematician-philosophers as Hippasus (*fl.* c. 500 BC), Philolaus of Croton (c. 470 – 385 BC), and Achytas of Tarentum (420 – 350 BC).

To this must be added the work of the Presocratic Democritus (460 – 371 BC). According to Clement of Alexandria, Democritus boasted that,

I [i.e. Democritus] have roamed over the most ground of any man of my time, investigating the most remote parts. I have seen the most skies and lands, and I have heard of learned men in very great numbers. And in composition [i.e. the construction of geometrical figures] no one has surpassed me; in demonstration [i.e. mathematical proofs], not even those among the Egyptians who are called Arpenodatae, with all of whom I lived in exile up to eighty years.⁴¹⁸

Democritus clearly valued the ability to construct a geometric proof, and in so doing distinguished himself from the mathematical abilities of other sages from other cultures. In so doing, he was expressing the new theoretical emphasis arisen amongst the Greek philosophers.

It is during this period that mathematics as a specialised theoretical discipline was developed. As we shall see in Chapter Seven, Plato instructed that ten years training of the prospective philosopher-kings be devoted to the mathematical sciences. The vocation of a *geometer*, or *arithmetician* was also fashioned at this time.

Attached to Plato's academy were many such influential mathematicians. In particular, the figures of Theaetetus (c. 417 – 369 BC) and Eudoxus (c. 408 – 355 BC) stand out prominently. In the dialogue *Theaetetus*, Plato recounts how the young Theaetetus in conversation with his teacher Theodorus, generalised the theory of roots,

development of theorems: that is, he extended mensuration into an abstract science, geometry, worthy of study for its own sake. ... It does seem that the mere application of rules to solve the practical problems of everyday life was not sufficient for Thales who sought the answers to universal problems, and who attempted a "proof" of sorts. ... Thales extended the practical skills and rules [i.e. the arts of counting and measuring of ancient Egyptian and Babylonian mathematics] into principles with broad application. With the work of Thales, and from these earliest beginnings, the unique character of Greek mathematics commenced its development.' O'Grady, *Thales of Miletus*, pp. 191, 201. For O'Grady's positive assessment of Thales in relation to Greek mathematics, see, O'Grady, *Thales of Miletus*, pp. 191-221; for her detailed analysis of the geometrical theorems attributed to Thales, see in particular, pp. 202-215.

⁴¹⁸ Clement of Alexandria, *Stromata*, I:15. From, Roberts and Donaldson (eds.), *The Ante-Nicene Fathers*, Vol.2.

discovering that the roots of oblong numbers are always irrational.⁴¹⁹ To these names must also be added the giant of 5th c. BC geometry, Hippocrates of Chios (c. 470 – 410 BC).⁴²⁰ All of which further developed the new theoretical approach to mathematics.

We observe then, that within the Presocratic period, a sudden shift occurred toward the abstract and theoretical reconstruction of mathematics. This finally culminated in the eclectic and enduring work of Euclid.

5.2.2 The Contrast with Euclid

The *Elements* of Euclid represent a paradigmatic instance of abstract theoretical mathematical science in philosophical Greece. Euclid (c. 325 – 265 BC) compiled much of the earlier work of Theaetetus and Eudoxus, both associates of Plato. He represents the epitome of classical Greek mathematics.

The *Elements* embody the statement of a rationally ordered axiomatic system. From a series of abstract axiomatic propositions, generalised theorems can be established within various abstract disciplines of mathematics. These may be categorised as, plane geometry — rectilinear figures (Books I-IV), proportions (V), similar figures (VI), number theory (VII-IX), incommensurables (X), and solid geometry (XI-XIII).

Euclid sets out the *Elements* very methodically. In Book I he begins with a series of twenty-three definitions for the generalised figures of plane geometry. Points, lines, surfaces, angles, and figures, are all systematically related one to another. A synthesis is approached with one defined object forming the basis of the definition for the next. For example, Def.1 defines a point; Def.2 defines a line; Def.3 defines the ends of a line in terms of points (Def.1); Def.4 defines a straight line in terms of points, and lines (Defs. 1,2).⁴²¹

⁴¹⁹ Plato, *Theaetetus*, 147d – 148b. For a further discussion on this see, Maziarz and Greenwood, *Greek Mathematical Philosophy*, pp. 76-77.

⁴²⁰ For an in-depth analysis of the mathematical contributions of each of these figures, see, van der Waerden, *Science Awakening*, Ch. IV-VI, pp. 82-200. Also, Heath, *A History of Greek Mathematics*, Vol.1, Ch.4-10, pp. 118-353.

⁴²¹ Euclid, *Elements*, Book 1, 'Def.1: A *point* is that which has no part. Def.2: A *line* is breadthless length. Def.3: The ends of a line are points. Def.4: A *straight line* is a line which lies evenly with the points on itself.' Heath translation.

Significantly, Euclid provides us with a set of axioms, basic premises, or pillars upon which an entire theoretical geometric discipline can be built. He has five postulates, which deal specifically with geometrical concepts, and five common notions, or general aphorisms, which are not specific to geometry. From these an entire series of propositions can be derived, through the idea of an abstract *proof*, something foreign to Egyptian and Babylonian arts of counting and measuring.

The notion of a proof, or mathematical demonstration, was designed to structure mathematics in a rigorous fashion, removing all guess work, and all ungrounded intuitions. The Euclidean method of demonstration, according to Proclus, followed a six-fold path.

- (1) πρότασις — *protasis*: The problem is enunciated. What is given and what is sought are explained.
- (2) ἔκθεσις — *ekthesis*: The figures contained within the problem are labelled using letters. The demonstration will proceed following these lettered figures.
- (3) διορισμός — *diorismos*: The problem needing to be solved is explained in terms of the lettered figures. The possibility and limits of the proof are examined.
- (4) κατασκευή — *kataskeue*: Any further figures needed in the demonstration are constructed.
- (5) ἀπόδειξις — *apodeixis*: The proof itself is rigorously constructed, using the lettered figures previously established, along with the relevant propositions, hypotheses, and definitions.
- (6) συμπεράσμα — *sumperasma*: The conclusion is reached, indicating that the protasis satisfies the rigorous proof conditions.⁴²²

Using this method of synthesis, or generation of mathematical constructs, meant that an entire mathematical field could be delineated. The axiomatic analytic postulates form the basis on which constructs are derived. Anything not able to be so constructed is unable to be proven within this theoretical scientific field (i.e. Euclidean geometry). This

⁴²² See, Proclus, *A Commentary on the First book of Euclid's Elements*, (Morrow trans.), pp. 159-164. For further details on this, see, Maziarz and Greenwood, *Greek Mathematical Philosophy*, pp. 248-249. Also, Heath, *The Thirteen Books of Euclid's Elements*, Vol.1, p. 129.

method exhibits the ordering of rational truths, which in turn exemplifies theoretical systematic knowledge.

When we compare Euclid with Egypt and Babylon, we find that they are in quite completely different worlds of discourse. That must give us cause to consider the reason for such a significant difference in approach. Attempting to explain historical causes must always be a difficult and tentative task. Nevertheless, I wish to posit two primary causes for this change in mathematical culture, namely, the shift from an oral-mythical to a literate-philosophical way of life; and the advent of a new anthropology that understands man as *essentially* an immaterial rational soul, *contingently* entombed in a physical body.

5.2.3 Effect of the Literacy Shift upon Mathematics

As I argued in Chapter Two, a radical change was inaugurated into Greek culture by the advent of the alphabetic script, or literacy properly so called. It gave birth to an abstract theoretical disposition in thought.

Interestingly, in relation to this, syllabic cultures were the mathematical forerunners of Greece. Insofar as pre-philosophical cultures are concerned, these were the most astute with respect to arts of counting and measuring. Both Egypt and Babylon, although *not* having developed an alphabetic literacy, nevertheless had developed a syllabary, in order to record documents. They had experimented and were familiar with the technology of symbolically representing what was orally communicated in some written form.

In fact, a *prima facie* case can be made that it would naturally be an easier task to record the results of counting and measuring, than it would be to codify speech patterns. For example, if an oral culture possessed the concept of *two things*, then one can imagine it would be an easier step to codify this as a symbol consisting of two things, such as two strokes //, than to undergo the harder step of codifying the linguistic sound 'two' either alphabetically, or syllabically. Havelock confirms this view in his study on orality. A culture does not need to possess literacy, in order to be adept at some fairly sophisticated,

yet concrete, arts of counting and measuring. Egypt and Babylon serve as principal examples of this.⁴²³

The cultural practice of counting and measuring will be understood in a new light, once the shift has taken place, from oral-mythical to literate-philosophical. An oral-mythical culture is concerned to integrate any counting or measuring done into the concrete story and praxis of the community. Any counting or measuring done is part of the very process of actors making actions. Counting and measuring is not understood as a theoretical enterprise undertaken *prior to* action, and then *applied to* action. Rather it is action, an integral part of the activity at the time.

For example, imagine a small oral-mythical village, with a particular villager who wishes to build a canoe for fishing trips. His actions would involve cutting down a tree, measuring the wood to the desired length, cutting it to the desired shape, and constructing it as a fishing canoe. To accomplish his task he would use all the skill in canoe-building he had been entrusted with by his forefathers and the community. He would not first sit down and abstractly contemplate the mathematical shapes and figures needed to construct his canoe, then go out and consider how to apply practically his theoretical idea.

The way to cognise, however, is quite different for a literate-philosophical culture. Now, the concept of counting and measuring is abstracted out from the time-bound situation of actors making actions, such as canoe-builders building canoes. We have, for the first time, the beginnings of a theoretical science of number and geometry. Shapes are abstracted from particular concrete situations (e.g. the square dining table), and considered as timeless abstractions (e.g. squareness in and of itself).

⁴²³ Havelock, *Origins of Western Literacy*, p. 8. Havelock states, 'Mathematical skill, as it is practised today, calls for a degree of intellectual sophistication which appears to lie beyond the competence of the majority of literate populations. To estimate the presence of mathematical aptitude, as a prerequisite for advanced study in the exact sciences, is a commonplace of academic procedure in the university. It seems empirically proven that good mathematicians, like good musicians, are born not made, and constitute a minority of even the so-called educated population. This has encouraged the historical view that the invention of the written word was an easier accomplishment than the invention of the written number, with the corollary that if an ancient civilisation – the Babylonian being one particular example – was on the epigraphical evidence able to handle an arithmetic superior to anything the Greeks could manage, this proves that the Babylonians had first to be literate in at least as full a sense as the Greeks were. But a general review of inscribed artefacts, wherever they have occurred in the world and been discovered, will I think support the conclusion that our ancestors learned to count long before they learned to read. In other

Abstract and systematic coherence must be supplied to these newly considered abstract concepts, such as number, point, line, and plane. New questions arise, such as ‘what is the timeless systematic relation (ratio) between a point and a line?’, or ‘what is the timeless systematic relation (ratio) between the hypotenuse and the other two sides of a right-angled triangle?’ These questions are only, and for the first time, meaningful within a literate-philosophical culture. Only such a culture has the tools, and desire, to think in terms of abstract concepts, and to bring these concepts systematically into a timeless relationship (ratio) with each other.

Here then, we recognise the rudiments of a mathematical theoretical *science*. Here also, we perceive the impetus for a mathematical *proof*. The way to bring *rational* systematicity to a mathematical science is through the method of analysis and synthesis. The abstract concepts of that particular discipline are broken down (analysed) into their basic atomic irreducible principles. From there, all the other concepts within that discipline are reconstructed (synthesised) using only these axiomatic principles. Here we obtain the method of deductive proof, the procedure followed by Euclid in the *Elements*.

5.2.4 Effect of the Anthropological Shift upon Mathematics

Concomitant with this new way to cognise, was the new way to think about who, *and what*, you were as a human being.

I argued in Chapters Two and Three, that for an oral-mythical villager, being human meant being an integral member of a community. Insofar as *persons* were concerned, humans were holistic and unified, not possessing an exclusive sense of individuality that could draw sharp sociological distinctions between self and community, as does contemporary western individualism. This is the picture presented to us in Homer, which represents a pre-philosophical Greek understanding.⁴²⁴

I argued in Chapters Three and Four, that for the philosophical Greek what you were as a human being was essentially an immaterial rational soul. This was particularly

words, the visual symbolisation of quantities originally came easier than the symbolisation of speech. And this is surely reasonable since quantities are visual entities, whereas speech sounds are not.’

⁴²⁴ This is an understanding shared, of course, by many other ancient pre-philosophical cultures, such as the Semitic peoples. See, Wolf, *Anthropologie des Alten Testaments*.

true of the Platonic tradition, due to the influence of both Orphism and abstract philosophical cognition. Within that tradition, sense experience was considered fleeting, and illusory. Reality was *perceived*, so to speak, through rational reflection, the domain of the intellect — not of the senses.

These two quite radically different anthropologies resulted in two quite different ways of life. For the oral-mythical villager, you found your identity, or *home*, in the world of your community, with its praxis, story, and concrete life. For the literate-philosophical thinker, you found your identity, or home, in the world of reason, the intellect, and the renouncing of sense experience as somehow less than real.

Plato evidences this mentality quite cogently. He states in the *Phaedo*,

So it is clear first of all in the case of physical pleasures that the philosopher frees his soul from association with the body... Now take the acquisition of knowledge. Is the body a hindrance or not, if one takes it into partnership to share an investigation? What I mean is this. Is there any certainty in human sight and hearing, or is it true, as the poets are always dinning our ears, that we neither hear nor see anything accurately?... Then when is it that the soul attains to truth? When it tries to investigate anything with the help of the body, it is obviously led astray... Surely the soul can best reflect when it is free of all distractions such as hearing or sight or pain or pleasure of any kind — that is, when it ignores the body and becomes as far as possible independent, avoiding all physical contacts and associations as much as it can, in its search for reality?... If no pure knowledge is possible in the company of the body, then either it is totally impossible to acquire knowledge, or it is only possible after death, because it is only then that the soul will be separate and independent of the body.⁴²⁵

The dramatic point here, of course, is that Socrates was quite justified in facing his own immanent death calmly and without concern. The philosopher understands death as the climax of the journey of philosophy, rather than as something hostile that breaks into life. It finally liberates the soul from its sense experience of contingent Becoming.

Anthropologically, we observe that because human beings are conceived of as rational souls, the sort of approach they should take toward their existence should be the life of philosophy. This way of life rejects the concrete, rejects the Homeric cultural forms, and recognises only abstract intellectual categories as truly real, as only that which can provide coherence and rational systematicity to one's experience.

⁴²⁵ Plato, *Phaedo*, 65a – 67a.

Plato draws a contrast between the concrete life of sense experience, and the abstract life of rational reflection. In the analogy of the *Cave* from the *Republic*, the philosopher will have no desire to partake in concrete life again, once he has obtained the vision of abstract Being, transcendent of sense experience. He will be mocked and scorned by those who do not understand. The two ways of life are set in sharp antithesis with each other.

And if you assume that the ascent and the contemplation of the things above is the soul's ascension to the intelligible region, you will not miss my surmise, since that is what you desire to hear... Come then, I said, and join me in this further thought, and do not be surprised that those who have attained to this height are not willing to occupy themselves with the affairs of men, but their souls ever feel the upward urge and the yearning for that sojourn above... And again, do you think it at all strange, said I, if a man returning from divine contemplations to the petty miseries of men cuts a sorry figure and appears most ridiculous...? ⁴²⁶

So when the domain of counting and measuring is under purview, what you consider yourself to be, as a human being, will certainly effect how you approach mathematics.

It was *because* the oral-mythical villager viewed himself as an integrated concrete whole, that he understood counting and measuring not as a separate enterprise in itself, nor as a theoretical discipline, but as an integral part of his daily community life. As an example of this, consider once again the villager building his canoe.

It was *because* the literate-philosophical thinker viewed himself essentially as an immaterial rational soul, that he understood counting and measuring as an abstract mathematical discipline, that had to be systematically ordered according to the method of constructing proofs from axiomatic foundations. If it was as an immaterial rational soul that the individual interacted with the world, then that individual's experience must be ordered according to abstract systematic relationships.

⁴²⁶ Plato, *Republic*, 517b-e.

5.3 Classical Greek Mathematics: Toward a Deductive Geometry

Concrete mathematical practice, then, is transformed along the following lines. For the oral-mythical way of life, arts of counting and measuring consist in the concrete activities of the actor. They involve the actual building of houses and temples, the actual construction of tangible objects. When you transform these theoretically, then the first step is to abstract from the particular to the universal. But one can still preserve, in this shift, the practical nature of what it means to construct concretely.

This is the path that the Greeks took. Rather than being concerned with particularised examples of how to construct a very specific triangle, the Greek task became how to construct a proof. For example, how to perform any given geometric operation upon any given triangle.

So the Greek method of rational proof in geometry still involved a remnant of the older oral-mythical mentality. To prove something *rationally* meant to *demonstrate* it *constructively*. This was not based upon a mere rule of thumb either, but was in turn transformed, both rigorously and rationally, to mean *construction upon the basis of axiomatic principles*.

For the ancient Greeks, the diagram played an integral part in a mathematical proof. A diagram was not an optional extra, added for visual clarity. Rather, it functioned as an essential component in what it meant to perform a rational proof.⁴²⁷

In this way, a vital link was forged between the two ways of life in the domain of mathematics. Classical Greek mathematics maintained a commonality with the arts of counting and measuring of earlier oral-mythical ways of life, through the exercise of *practical constructs*, albeit rationally transformed into a deductive science of analysis and synthesis.

⁴²⁷ This has been cogently argued in, Netz, *The Shaping of Deduction in Greek Mathematics*. There he argues that the text and diagram are essentially interrelated and interdependent (p.19), and that diagrams are metonyms of propositions, considered by the Greeks not as appendages to propositions, but as the core of a proposition. (p.35).

It was not until the advent of algebra that we arrive at a new *symbolic* concept of number that relies upon a second order level of *abstraction*. This, properly speaking, was championed in the early modern period, with such transitional figures as Vieta (AD 1540 – 1603), Stevin (AD 1548 – 1620), Descartes (AD 1596 – 1650), and Wallis (AD 1616 – 1703).⁴²⁸ This meant, in effect, that all vestiges of practical construction may be removed from a proof, and a proof may proceed along purely symbolic, abstract, algebraic lines.

Historically, the Greeks developed their theoretical mathematical sciences, specifically, in terms of a deductive geometry. This was a science which incorporated the concept of an abstract proof, but in the context of a first order geometric abstraction (e.g. the concept of triangularity in general).

This proves vitally significant when we come to understand the Platonic cosmogony of the *Timaeus*. In this dialogue Plato *constructs* the cosmos upon the basis of a geometric science. This discussion will form the theme of Chapter Six.

⁴²⁸ As is argued cogently by Klein, *Greek Mathematical Thought and the Origin of Algebra*. Also, Pritchard, *Plato's Philosophy of Mathematics*, Ch.4. There has been some debate regarding this issue, as to whether or not the Greeks possessed an algebra. Some of the chief competitors are, Unguru, "On the Need to Rewrite the History of Greek Mathematics" (who argues against a Greek algebra); van der Waerden, "Defence of a "Shocking" Point of View" (who defends a Greek algebra); and Freudenthal, "What is Algebra and What has it been in History?" (who also seeks to defend a Greek algebra). For this thesis, I side with the scholarship of Klein, Pritchard, and Unguru, that the Greeks simply could not possess an algebraic science (explicitly or implicitly), as the necessary philosophical concept of second-order abstraction did not historically arise until the post-Renaissance period.

Part Two:

Plato as

Orphic Mathematician

Part Two: Plato as Orphic Mathematician

Chapter Six:

The Mathematical World of Plato

God eternally geometrizes

— Plato, as reported by Plutarch, *Convivialium Disputationum liber*, 8:2

In this chapter I examine how at the macrocosmic level mathematics is, for Plato, the medium through which the world of Being is imaged into the world of Becoming. Through mathematics a synthesis is obtained between Being and Becoming.

The Platonic cosmology can best be understood to express a grand philosophically transformed Orphic theogony. The Divine Being, pure Reason, emanates out into the Chaos, and brings about an ordered Becoming. Through the rational generations of the Divine (*i.e. a theogony*), the cosmos is born. But the Divine Reason achieves this order through the use of mathematical principles and forms, number ratio and geometrical structuring.

The focus of this chapter is to analyse the dialogue *Timaeus*. I argue that Plato had in mind a distinctive Orphic theogony as the background to this dialogue. This theogony he then developed, and transformed, upon the basis of mathematics. By so doing, Plato aimed to synthesise Being and Becoming, inspired by the Orphic religious synthesis of Apollo and Dionysus.

6.1 Mathematics as the Medium of the Cosmos

In Part One of this thesis, I detailed how both alphabetic literacy and Orphism were formative influences upon the Greek philosophical mindset, and in particular, upon the philosophy of Plato. Here, in Part Two, I shall demonstrate specifically that Plato's treatment of mathematics, as the mediator between Being and Becoming, was inspired by the Orphic religiosity. In this chapter, therefore, I deal with the *macrocosm* of the cosmos itself. In Chapter Seven I focus upon the concomitant of this, namely, the *microcosm* of the soul.

In the dialogue *Timaeus* Plato presents to us more explicitly than anywhere else his vision of the cosmos. His ontology continues the overarching themes unfolded in the earlier dialogues, such as the *Phaedo* and *Republic*. That which truly exists is Being, and can only be apprehended through the rational faculty. The world of our senses, in its state of constant change and flux, can only be described as Becoming.⁴²⁹ In *Timaeus* Plato creates for us a grand, philosophically transformed, mythical cosmogony. He paints for us a picture of how we are to conceive of Being and Becoming, and most especially how they are related to each other.

I propose that the cosmology Plato presents to us in the *Timaeus* represents a grand philosophically transformed Orphic theogony. Following in the footsteps of the Pythagoreans, as argued in Chapter Four, it is through the abstract sciences of arithmetic, geometry and harmony, that Plato undertakes this transformation. We are only able to speak of a *cosmos* (world order) in so far as immaterial Being is imaged into the material. Mathematics, Plato urges, is the medium through which this is achieved.

In this chapter then, I shall firstly argue that the *Timaeus* is best understood in terms of a transformed Orphic theogony (Sections 6.2 and 6.3). Secondly, I shall argue that mathematics functions as the medium through which Plato accomplishes this philosophical transformation (Sections 6.4 and 6.5).

⁴²⁹ This theme of *Being* and *Becoming*, with respect to the *Phaedo* and *Republic*, will be further examined in Chapter Seven.

6.2 Platonic Cosmogony

6.2.1 Cosmogonic Context

The *Timaeus* reads as a detailed creation-myth. Plato, through the dramatic voice of Timaeus, endeavours to portray the unfolding of the cosmos from its initial genesis. His approach is to describe the elements of the cosmos as they are *generated* in terms of a creation-myth, rather than to analyse and provide an account of the elements of the cosmos as they are *given* before us now. In this sense, Plato draws for us a *cosmogony*, rather than a *cosmology*.

I have already had occasion in Chapters Three and Four, to place Plato in the context of the Orphic mythologies, particularly with regard to the dualistic anthropology newly introduced into Greek thought through that movement. Here, in the *Timaeus*, we must step back and set its cosmogony within the broader cosmogonic mythologies and speculation of Plato's historical context.

The primary background text, for any classical Greek cosmogonic speculation, is of course the *Theogony* of Hesiod. This was likely composed *c.* 8th c. BC, with Hesiod being a later contemporary of Homer. The *Theogony* recites the traditional account of the origin of the gods, both the older generations and the Olympian deities.

The Orphics adapted the Hesiodic theogony into their own distinctly Orphic theogonies, retelling the old myths in a new way that encapsulated their new anthropological and eschatological ideas. In addition to this, the earliest period of Presocratic philosophy (primarily the Milesians — Thales, Anaximander and Anaximenes) is often characterised as *cosmological* given the propensity to account for the cosmos in terms of a single structural element, e.g. water, apeiron, aer. In this sense the Milesian Presocratics, for the first time, speculated *theoretically* concerning structure of the cosmos.

This forms the background context in which Plato must be understood. The *Timaeus* should be interpreted, in this light, as a philosophically transformed *Orphic* cosmogony. Further, it is mathematics that mediates this transformation, as I shall demonstrate later in this chapter.

Our knowledge of the Orphic theogonies and cosmogonies, comes to us primarily through the much later reports of Neoplatonic writers. Damascius (c. AD 480 – 550), the last head of the Academy, records for us three Orphic theogonic traditions in his work *On the First Principles*. One he describes as ‘these current Orphic Rhapsodies’, which is usually identified as the *Hieros Logos*, or the *Hieroi Logoi in Twenty-four Rhapsodies* recorded in the list of works in the *Suda*.⁴³⁰ The second he describes as ‘the one current according to Hieronymus — and Hellanicus, if he is not the same person’, and the third he describes as, ‘the theology recorded in the Peripatetic Eudemus as being that of Orpheus’.⁴³¹ In addition to these three, M.L. West identifies three further Orphic theogonic traditions, namely, that associated with the Epic Cycle, that associated with the Derveni Papyrus, and lastly what West describes as the Protogonos theogony. This last theogony, West considers to be the longer original of which the Derveni theogony is an abridgement.⁴³² It is in relation to these that we must evaluate the *Timaeus*.

6.2.2 *Timaeus* Theogony

Plato briefly, but explicitly, refers to a traditional theogony in the *Timaeus*. In discussing the place of the traditional gods in his world-picture he states,

To know or tell of the origin of the other divinities is beyond us, and we must accept the traditions of the men of old time who affirm themselves to be the offspring of the gods — that is what they say — and they must surely have known their own ancestors. How can we doubt the word of the children of the gods? Although they give us no probable or certain proofs, still, as they declare that they are speaking of what took place in their own family, we must conform to custom and believe them. In this manner, then, according to them, the genealogy of these gods is to be received and set forth.

Oceanus and Tethys were the children of Earth and Heaven, and from these sprang Phorcys and Cronus and Rhea, and all that generation, and from Cronus and Rhea sprang Zeus and Hera, and all those who are said to be their brethren, and others who were the children of these.⁴³³

⁴³⁰ West, *The Orphic Poems*, p. 68.

⁴³¹ For the three Damascius references see, Damascius, *On the First Principles*, 123-4. Kern, *Orphicorum Fragmenta*, 28, 54, 60. Cited from, West, *The Orphic Poems*, pp. 68-69. See also, Guthrie, *Orpheus*, p. 73; Cornford, *Greek Religious Thought*, p. 55; Rappe, *Reading Neoplatonism*, pp. 146-149.

⁴³² West, *The Orphic Poems*, p. 69.

⁴³³ Plato, *Timaeus*, 40d – 41a.

What strikes us immediately, in the short theogony here presented, is the way it deviates with the Hesiodic theogony. For Hesiod, all of Oceanus, Tethys, Phorcys, Kronos (i.e. Cronus) and Rhea are the children of Earth (Ge) and Heaven (Uranos).

Hesiodic Theogony

1st Generation: Chaos

2nd Generation: Ge (Earth), Tartarus, Eros, Erebus

3rd Generation: Uranos (Heaven) (born of Ge)

4th Generation: Oceanus, Kronos, Rhea, and the other Titans (born from Ge and Uranos)

5th Generation: Zeus, Hera, and the other Olympians (born from Kronos and Rhea)

But in the *Timaeus* theogony, the first generation is Ge and Uranos, who bear the second generation Oceanus and Tethys, *who in turn* bear the third generation Phorcys, Kronos and Rhea, of which Kronos and Rhea in turn bear the fourth generation Zeus and Hera.

Timaeus Theogony

1st Generation: Ge (Earth), Uranos (Heaven)

2nd Generation: Oceanus, Tethys (born of Ge and Uranos)

3rd Generation: Phorcys, Kronos, Rhea, and the others (born of Oceanus and Tethys)

4th Generation: Zeus, Hera, and the others (born of Kronos and Rhea)

This departure from the Hesiodic tradition invites us to consider which theogonic tradition Plato here has in mind. West argues that out of the six identifiable theogonies, the Eudemian is most likely the source of the *Timaeus* account. There is much that commends this supposition.

Damascius tells us that in the Eudemian theogony, Night was the beginning, and there is nothing spoken of before Night.⁴³⁴ Aristotle also testifies to

...the mythologists who generate the world from night....⁴³⁵

⁴³⁴ Damascius, *On the First Principles*, 123-124. See, West, *The Orphic Poems*, pp. 68-69, 116.

There are at least two reasons for assuming that Aristotle is speaking here of what Damascius calls the Eudemian theogony. Firstly, Eudemus was both a pupil and colleague of Aristotle so that the theogony would have been well known to both of them. Secondly, Aristotle would not be thinking of the theogonies ascribed to Musaeus or Epimenides, as these commence with a *pair* of gods not the *single* Night.⁴³⁶ Neither Plato nor Aristotle made any reference to a *theogony* of Musaeus, the first such reference coming from later Hellenistic authors.⁴³⁷

A difficulty also arises in attempting to directly correlate the *Timaeus* theogony with the other known Orphic theogonies. In a unique way, the *Timaeus* theogony places Oceanus and Tethys as a separate generation coming from Ge and Uranos. All of the Rhapsodic, Hieronymean, Cyclic, Protogonos, and Derveni theogonies follow Hesiod in having Oceanus and Tethys as siblings of the other Titans, including Kronos and Rhea.

Given the difficulties of aligning the brief theogonic passage in the *Timaeus* with these other five known theogonies, and given that Eudemus is recording a theogony known to Aristotle, it is tempting to follow West and identify the Eudemian theogony with the *Timaeus* theogony. Before so doing, however, we need to account for the special role of Oceanus and Tethys as parents of the Titans rather than as Titans themselves, and for the absence of Night in the *Timaeus* account.

In the Hesiodic theogony, the Titans are the offspring of Uranos and Ge, and are twelve in number: Oceanus, Koios, Kreios, Iapetus, Hyperion, Theia, Rhea, Themis, Mnemosyne, Tethys, Phoebe, and Kronos. Why then does *Timaeus* assign Oceanus and Tethys to a generation earlier than the other Titans? A precedent for this occurs, perhaps, in the Homeric mythology. Homer speaks of Oceanus and Tethys as a separate pair, preceding the generation of the other gods.

Oceanus the genesis of the gods, and mother Tethys.⁴³⁸

The Hesiodic tradition synthesises this pair into the same generation as the other Titans. Yet even in Hesiod, Oceanus stands aloof from his siblings. He is not cast into

⁴³⁵ Aristotle, *Metaphysics*, 1071b27.

⁴³⁶ West, *The Orphic Poems*, p. 116.

⁴³⁷ See West, *The Orphic Poems*, pp. 42, 117.

⁴³⁸ Homer, *Iliad*, 14:201. As noted by West, *The Orphic Poems*, p. 119.

Tartarus, and even sides with Zeus against the other Titans. Further to this, Theodoretus relates a tradition that he attributes to Hesiod, which ascribes Oceanus and Tethys as coming *before* Uranos and Ge.⁴³⁹

The *Timaeus* theogony establishes Phorcys as the son of Oceanus, and one of the Titans. This also contrasts with the Hesiodic theogony where instead he is the son of Pontos, and not one of the twelve Titans. In the later Rhapsodies, however, the Titans number fourteen, consisting of the same twelve as Hesiod names, with Phorcys and Dione added.

The *Timeaus* theogony, then, suggests an intermediary development in which the Titans still number twelve, but with Oceanus and Tethys posited as the parents of the Titans, their place among the Hesiodic twelve appropriated by Phorcys and presumably Dione. Dione is not mentioned, but given her place as a Titan in the Rhapsodies, one could reasonably assume that the *Timaeus* theogony is an earlier variation on this.

The role of Night, however, is more curious. The *Timaeus* theogony makes no mention of Night, starting its genealogy with Ge and Uranos, whereas both Damascius and Aristotle declare Night to be the parent of the rest of the gods.

West explains this difficulty in identifying the *Timaeus* and Eudemian theogonies as follows,

The fact that Night does not appear at the beginning is no obstacle to the identification of this poem with the Eudemian Theogony. In the *Timaeus* all gods are sprung from the great Demiurge; and night cannot be a god, being merely something produced by the earth's shadow (40c) and a unit of time. Plato is not concerned to do justice to Orpheus' scheme, he is just taking what he wants from it. It is inconceivable that the poem had nothing before Ge and Uranos, and there is nothing against supplying Night there.⁴⁴⁰

I would add to this that Plato's dramatic purpose in recounting this Orphic theogonic fragment in the *Timaeus* was not to present us with a full and explicit theogony. Rather, he merely alludes to a certain theogonic tradition, and places this mythical account of the gods within the larger context of the *Timaeus* cosmogony. For this reason, he only provides us with a fragment of the Orphic theogony, and relies upon

⁴³⁹ Theodoretus Cyrensis, *Graecarum Affectionum Curatio*, 2.28. As noted by West, *The Orphic Poems*, p. 120.

the reader to supply the rest of the details. West's supposition then, that there could have originally been a place for Night prior to the genealogy explicitly stated in the *Timaeus*, is surely *prima facie* reasonable. From this, West proposes that the *Timaeus* theogony represents a fragment from a larger Eudemian theogony, which contained Night as its first principle. Further evidence for this proposal is found in John Lydus, who speaks of the first principles of the Orphics as being Night, Earth (Ge) and Heaven (Uranos).⁴⁴¹ As West states,

This does not agree with the only Orphic theogony current in Lydus' time, the Rhapsodies, and the most likely hypothesis is that he got it directly or indirectly from Eudemus.⁴⁴²

We are therefore tentatively able to identify the Eudemian theogony with that of the *Timaeus*. Yet this is by no means the only occasion where Plato alludes to or quotes from an Orphic theogony. Both Rappe and West draw attention to the statement of the *Athenian* in Plato's *Laws*,

Now then, our address should go like this: "Men, according to the ancient story, there is a *god who holds in his hands the beginning and end and middle of all things*, and straight he marches in the cycle of nature. Justice, who takes vengeance on those who abandon the divine law, never leaves his side..."⁴⁴³

They argue that this is a quotation from line 26 of the Derveni papyrus,⁴⁴⁴

Zeus is the head, Zeus the middle, from Zeus are all things made.⁴⁴⁵

This line was also known in the late Stoic work *De Mundo*, and by the later Neoplatonists.⁴⁴⁶ As the Derveni papyrus itself dates from the late 4th c. BC, it is reasonable to assume that Plato also knew the Orphic theogonies within the Derveni tradition.

Timaeus 40d – 41a, then, reveals to us a larger context of Orphic theogonic and cosmogonic speculation. When we expand our vision to the panoramic view of the *Timaeus* as a whole, we observe even more of the Orphic context which Plato sought to

⁴⁴⁰ West, *The Orphic Poems*, p. 117.

⁴⁴¹ John Lydus, *De Mensibus*. 2.8. Kern, *Orphicorum Fragmenta*, 310.

⁴⁴² West, *The Orphic Poems*, p. 118.

⁴⁴³ Plato, *Laws*, 715e – 716a. Emphases added. Saunders translation (from the Cooper ed.).

⁴⁴⁴ Rappe, *Reading Neoplatonism*, p. 149. West, *The Orphic Poems*, p. 89.

⁴⁴⁵ Quoted from West's translation, West, *The Orphic Poems*, p. 89.

transform philosophically. In particular, the characters of the Orphic theogonies are reworked by Plato, characters such as *Chronos* (Time), *Anangkê* (Necessity), and the *Elements* (earth, water, air, fire). In this manner then, the *Timaeus* theogony of 40d – 41a functions as an axis upon which we may interpret the dramatic structure of the entire *Timaeus*, as consisting in a grand Orphic cosmogony.

6.2.3 *Timaeus* Cosmogony as Orphic Theogony

6.2.3.1 *Chronos*

Chronos, or Time (not to be confused with *Kronos* the Titan), is spoken of both in the Orphic Rhapsodies and in the Hieronymean Theogony. For the Rhapsodies, *Chronos* represents the first principle — ‘First there was Unaging time’.⁴⁴⁷ In the Hieronymean Theogony, *Chronos* is portrayed as a winged Dragon or Serpent (δράκων — *drakon*) with the extra heads of a bull and a lion. *Chronos* is generated from the first pair of water and earth, perhaps recalling *Oceanus* and *Ge*.

The third principle after the two was engendered by these — earth and water, that is — and was a serpent with extra heads growing upon it of a bull and a lion, and a god’s countenance in the middle; it had wings upon its shoulders, and its name was Unaging Time and also *Heracles*.⁴⁴⁸

Damascius considered that the compiler of the Rhapsodies ignored the earth-water pairing (and any assumed original behind them), and began with *Chronos*, as this would be more acceptable.⁴⁴⁹

Plato also weaves *Chronos* into his world picture. In the *Timaeus*, *Chronos* is coupled intimately with Heaven (*Uranos*) such that the two are generated together. *Chronos*, then, stands at the beginning of the generation of the sensible world (i.e. the world of *Becoming*).

⁴⁴⁶ See, West, *The Orphic Poems*, p. 89.

⁴⁴⁷ *Damascius*, *On the First Principles*, 123ff. See also, West, *The Orphic Poems*, p. 70. Also, Cornford, *Greek Religious Thought*, p. 55.

⁴⁴⁸ *Damascius*, *On the First Principles*, 123. West’s translation, in, West, *The Orphic Poems*, p. 178.

⁴⁴⁹ *Damascius*, *On the First Principles*, 123. West’s translation, in, West, *The Orphic Poems*, p. 178, ‘And I assume that the theology in the Rhapsodies discarded the two first principles (together with the one before the two, that was left unspoken), and began from this third principle after the two, because this was the first that was expressible and acceptable to human ears. For this is the great Unaging Time that we found in it [i.e. in the Rhapsodic Theogony] ...’

When the father who had begotten it saw it set in motion and alive, a shrine brought into being for the everlasting gods, he rejoiced and being well pleased he took thought to make it yet more like its pattern. So as that pattern is the Living Being that is for ever existent, he sought to make this universe also like it, so far as might be, in that respect. Now the nature of that Living Being was eternal, and this character it was impossible to confer in full completeness on the generated thing. But he took thought to make, as it were, a moving likeness of eternity; and, at the same time that he ordered the Heaven, he made, of eternity that abides in unity, an everlasting likeness moving according to number — that to which we have given the name Time [*Chronos*].

For there were no days and nights, months and years, before the Heaven [*Uranos*] came into being; but he planned that they should now come to be at the same time that the Heaven was framed....

Be that as it may, Time [*Chronos*] came into being together with the Heaven [*Uranos*], in order that, as they were brought into being together, so they may be dissolved together, if ever their dissolution should come to pass.⁴⁵⁰

Plato describes Chronos as an everlasting or eternal likeness (αἰώνιον εἰκόνα — *aionion eikona*). 'Aionion' (or 'Aionos') is the same word he employs to speak of Eternity. *Chronos* (Time) is an Eternal, or Unaging, image of Eternity itself. Here we have allusions to the *Unaging Chronos* (Time) of the Orphic theogonies.

This also has precedence in Anaximander of Miletus. He refers to *apeiron*, the 'original material of existing things', and the 'source from which existing things derive their existence',⁴⁵¹ as the Unaging Time.

This apeiron is eternal and unaging.
Apeiron is immortal and indestructible.⁴⁵²

As discussed in Chapter Two, the Presocratics initiated a linguistic shift away from the time-bound stories of concrete *actors making actions*, to abstract timeless *categories of cognition*. The very use of the term 'is' to speak of abstract, timeless Being, rather than

⁴⁵⁰ Plato, *Timaeus*, 37c – 38b. Cornford translation. Likewise, Zeyl rejects the rendering of the Greek of *Timaeus* 37d5-7, which would make the *heavens*, not *time*, that which is the 'image of eternity'. He states, 'It is possible, though difficult, to construe the Greek at 37d5-7 differently as follows: "At the same time as he brought order [to the universe], he would make the heavens, an eternal image moving according to number, of eternity remaining in unity. This [number], of course, is what we call time." On this reading it is the heavens, not time, that is the image of eternity; time is the "number" according to which the heavens move. It is difficult, however, to square this reading with 38a7-8, which explicitly refers to *time* (and not to the heavens as such) as that which "imitates eternity and circles according to number." ... [Zeyl takes] Plato's point as follows: by setting the heaven in motion the Craftsman creates time, a supervenient aspect of that motion. Just as the heaven itself (and indeed the whole visible universe) is modeled [sic.] after the eternal Living Thing, so its temporality is modeled [sic.] after the Living Thing's eternity.', Zeyl, *Plato – Timaeus*, p. xlii, n. 80.

⁴⁵¹ Anaximander, 12 B 1 DK. Freeman translation.

⁴⁵² Anaximander, 12 B 2, and 12 B 3 DK.

a present tense of unfolding time, was there noted. Here in the *Timaeus*, Plato shows a clear understanding of this linguistic phenomenon. It is only appropriate to speak of Eternal Being as an 'is', never as a 'was' or 'shall be'.

All these [*i.e. days and nights, months and years*] are parts of Time, and 'was' and 'shall be' are forms of time that have come to be; we are wrong to transfer them unthinkingly to eternal being. We say that it was and is and shall be; but 'is' alone really belongs to it and describes it truly; 'was' and 'shall be' are properly used of becoming which proceeds in time, for they are motions. But that which is for ever in the same state immovably cannot be becoming older or younger by lapse of time, nor can it ever become so; neither can it now have been, nor will it be in the future; and in general nothing belongs to it of all that Becoming attaches to the moving things of sense; but all these have come into being as forms of time, which images eternity and revolves according to number. And besides we make statements like these: that what is past *is* past, what happens now *is* happening now, and again that what will happen *is* what will happen, and that the non-existent is non-existent: no one of these expressions is exact.⁴⁵³

Chronos itself, is merely a likeness or an image of Eternity (αἰώνος — *aionos*). Eternity is the nature of Being, which exists as the timeless *is*. Chronos (or time), then, is the way in which Becoming is to image the Eternity of Being.⁴⁵⁴

In addition to this, it is important to note that Eternity is imaged in Time according to number. It is through mathematics that the realms of Being and Becoming are mediated. Upon the basis of mathematics Being is imaged or projected into Becoming. I discuss this further later in this chapter.

6.2.3.2 *Anangkê*

Anangkê (ἀνάγκη) is variously translated as *Necessity*, *Inevitability*, or *Compulsion*. The difficulty in so rendering this Greek concept is that it can be mistakenly read in a modern sense as an almost *deterministic* cause.⁴⁵⁵ Necessity, functioning in this modern sense, is an *antonym* of accident or chance. But this is not the case with the classical Greek idea of *Anangkê*. Instead, *Anangkê* should be understood as a compulsion

⁴⁵³ Plato, *Timaeus*, 37e – 38b. Cornford translation.

⁴⁵⁴ For a further discussion on the nature of time and eternity in the *Timaeus*, see, Zeyl, *Plato – Timaeus*, pp. xlii – xliv.

⁴⁵⁵ As an example of this confusion, take the footnote to the word Necessity (*Anangkê*) as it appears in *Timaeus* 47e of the Loeb classical library edition. There the translator, R.G. Bury, states in explanation of the word, 'i.e. the sphere of mechanical causation, physical and physiological processes and results.' In, Plato, *Timaeus*, R.G. Bury (trans.), p. 109, n. 2.

or constraint which in itself has no determinate direction or design. Grote summarised this well when he stated,

This word (necessity) is now usually understood as denoting what is fixed, permanent, unalterable, knowable beforehand. In the Platonic *Timaeus* it means the very reverse: the indeterminable, the inconstant, the anomalous, that which can be neither understood nor predicted. It is Force, Movement, or Change, with the negative attribute of not being regular, or intelligible, or determined by any knowable antecedent or condition — *vis consili expers*.⁴⁵⁶

Both Plato and Aristotle associate Necessity (*Anangkê*) not with deterministic causation or even design, but with chance, and spontaneity. In the *Physics* Aristotle endeavours to ‘explain then first why nature belongs to the class of causes which act for the sake of something; and then about the necessary and its place in nature...’ He presents his opponents as arguing,

... why should not nature work, not for the sake of something, nor because it is better so [*i.e. not because there is design or an end in view*], but just as the sky rains, not in order to make the corn grow, but of necessity [*ἐξ ἀνάγκης* — *ex anangkês*, *i.e. because of a constraint that has no specific end in view*]? ... Why then should it not be the same with the parts in nature, e.g. that our teeth should come up of necessity [*ἐξ ἀνάγκης* — *ex anangkês*] — the front teeth sharp, fitted for tearing, the molars broad and useful for grinding down the food — since they did not arise for this end, but it was merely a coincident result [*συμπεσεῖν* — *sumpesein*]; and so with all the others parts in which we suppose that there is purpose [*τὸ ἐνεκά του* — *to eneka tou*]? Wherever then all the parts came about just what they would have been if they had come to be for an end, such things survived, being organized spontaneously [*ἀπὸ τοῦ αὐτομάτου* — *apo tou automatou*] in a fitting way; whereas those which grew otherwise perished and continue to perish, as Empedocles says his ‘man-faced oxprogeny’ did.⁴⁵⁷

Here, Necessity is connected strongly with that which is ‘not for the sake of something’, a ‘coincident result’ and ‘being organised spontaneously’.

Plato also associates *Anangkê* with chance. In the *Laws*, the Athenian speaks of the four *elements* (fire, water, earth, and air) as owing their being to nature and chance (*φύσει καὶ τύχῃ* — *phusei kai tuchê*), not to art or design (*τέχνῃ* — *technê*). There he states that the elements move,

... by the chance of their several powers, and according as they clash and fit together with some sort of affinity — hot with cold, dry with moist, soft with hard, and in other mixtures that result, by chance, of necessity [*κατὰ τύχην ἐξ ἀνάγκης* — *kata*

⁴⁵⁶ Grote, *Plato*, iii, Ch.36. As cited by Cornford, *Plato's Cosmology*, pp. 171-172.

⁴⁵⁷ Aristotle, *Physics*, II,8, 198b17 ff. As cited by Cornford, *Plato's Cosmology*, pp. 165-166.

tuchên ex anangkês], from the combination of opposites — in that way they have generated the whole Heaven, animals and plants, and the seasons, not owing to intelligence or design or some divinity, but by nature and chance [φύσει καὶ τύχῃ — *phusei kai tuchê*].⁴⁵⁸

Necessity (*Anangkê*) then, for the Greek philosophers, was the force or constraint behind the activity in the cosmos. But considered in itself, this *Anangkê* was without design or purpose. It was not directed toward any end.

The Orphic theogonies, and in particular the Rhapsodic and Hieronymean theogonies, speak of Necessity (*Anangkê*) as coupled together with *Chronos*. Regarding the Hieronymean tradition Damascius states,

United with it [*i.e. the Dragon-Serpent Chronos*] was Ananke, being of the same nature, or Adrastea, incorporeal, her arms extended throughout the universe and touching its extremities. I think this stands for the third principle, occupying the place of essence, only he made it bisexual to symbolise the universal generative cause.⁴⁵⁹

The image here is that of the two serpents wound together.

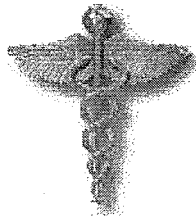


Figure 7

This symbol has its roots in ancient Sumerian iconography.⁴⁶⁰ Athenagoras of Athens associates this staff of entwined serpents with the mating of Zeus and Rhea, and the rod of Hermes.

... and how Zeus bound his father, and cast him down to Tartarus, as did Ouranos also to his sons, and fought with the Titans for the government; and how he persecuted his mother Rhea when she refused to wed him, and, she becoming a she-dragon [*or serpent*], and he himself being changed into a dragon [*or serpent*], bound

⁴⁵⁸ Plato, *Laws*, 889b-c. Cornford translation, and as cited by, Cornford, *Plato's Cosmology*, p. 167.

⁴⁵⁹ Damascius, *On the First Principles*, 123. West translation. In, West, *The Orphic Poems*, p. 178. See also, West, *The Orphic Poems*, p. 70.

⁴⁶⁰ See, E.D. Van Buren, *Archiv f. Orientforschung* 10 (1935/6), pp. 53-65; P. Amiet, *La Glyptique mesopotamienne archaïque* (2nd ed. 1980), p. 134. As cited by West, *The Orphic Poems*, p. 195, n. 57.

her with what is called the Herculean knot, and accomplished his purpose, of which fact the rod of Hermes is a symbol.⁴⁶¹

Even prior to Plato, *Anangkê* was being transformed philosophically. Parmenides speaks of *Anangkê* (Necessity) as containing Being within the boundaries of the Limit, and how it holds the stars also to Limit.

But it [*i.e. Being*] is motionless in the limits of mighty bonds, without beginning, without cease, since Becoming and Destruction have been driven very far away, and true conviction has rejected them. And remaining the same in the same place, it rests by itself and thus remains there fixed; for powerful Necessity [*Anangkê*] holds it in the bonds of a Limit, which constrains it round about, because it is decreed by divine law that being shall not be without boundary. For it is not lacking; but if it were (*spatially infinite*), it would be lacking everything.

And you shall learn of the wandering works of the round-faced moon, and its nature; and you shall know also the surrounding heaven, whence it sprang and how Necessity [*Anangkê*] brought it and constrained it to hold the limits of the stars.⁴⁶²

Plato already begins to identify *Adrastea* and *Anangkê*. In the *Phaedrus*, he speaks of *Adrastea* as the goddess who oversees the destiny of the soul. Translators have even rendered this term as *Destiny* (Jowett, Fowler, Nehamas and Woodruff) or *Necessity* (Hackforth).

Hear now the ordinance of Necessity [*or the 'law of destiny' — Jowett, Fowler, Nehamas and Woodruff, Greek — Adrasteias*]. Whatsoever soul has followed in the train of a god, and discerned something of truth, shall be kept from sorrow until a new revolution shall begin, and if she can do this always, she shall remain always free from hurt....⁴⁶³

Lachesis, the maiden daughter of *Anangkê* (Necessity) from the *Republic*, is closely identified, in terms of function, with *Adrastea*.

Now when they [*i.e. the souls*] arrived they were straightway bidden to go before Lachesis, and then a certain prophet first marshalled them in orderly intervals, and thereupon took from the lap of Lachesis lots and patterns of lives and went up to a lofty platform and spoke, 'This is the word of Lachesis, the maiden daughter of Necessity, "Souls that live for a day, now is the beginning of another cycle of mortal generation where birth is the beacon of death. No divinity shall cast lots for you, but you shall choose your own deity. Let him to whom falls the first lot first select a life to which he shall cleave of necessity, But virtue has no master over her, and each

⁴⁶¹ Athenagoras of Athens, *Apology*, 20. From, Roberts and Donaldson (eds.), *The Ante-Nicene Fathers*, Vol.2.

⁴⁶² Parmenides, 28 B 8, 28 B 10 DK.

⁴⁶³ Plato, *Phaedrus*, 248c. Hackforth translation.

shall have more or less of her as he honours her or does her despite. The blame is his who chooses. God is blameless.”⁴⁶⁴

According to the Hieronymean theogony, the arms of *Anangkê/Adrastea* ‘extended throughout the universe and touching its extremities’. According to Aetius, the Pythagoreans held that, ‘Necessity hedges the world about’.⁴⁶⁵ Further to this, on the testimony of Porphyry, Aristotle recorded that Pythagoras described the Two Bears constellation as the hands of Rhea — which would reach out and embrace the heavens, thus placing a goddess at the centre, enveloping the cosmos.

Pythagoras used to say certain things in a mystical and symbolic way, and Aristotle has recorded many of these; e.g. that he called the sea the tears of Cronos, the Bears the hands of Rhea, the Pleiades the lyre of the Muses, the planets the dogs of Persephone; the ringing sound of bronze when struck was, he said, the voice of a divine being imprisoned in the bronze.⁴⁶⁶

In a similar fashion, Parmenides speaks of the goddess at the centre of the cosmos who oversees and guides all. Perhaps inviting us to identify *Anangkê* with this goddess.

... and you shall know also the surrounding heaven, whence it sprang and how Necessity brought and constrained it to hold the limits of the stars.

(*I will describe*) how the earth and sun and moon, and the heavens common to all, and the Milky Way in the heavens, and outermost Olympus, and the hot power of the stars, hastened to come into being.

For the narrower rings were filled with unmixed Fire, and those next to them with Night, but between (*these*) rushes the portion of Flame. And in the centre of these is the goddess who guides everything; for throughout she rules over cruel Birth and Mating, sending the female to mate with the male, and conversely again the male with the female.⁴⁶⁷

Plato adopts and adapts these images into his own world picture. In the myth of Er from the *Republic* a light girdles together the extremities of the cosmos, and from the ends of the cosmos stretches the spindle of Necessity. This turns all the orbits of the heavens, and is seated on the knees of Necessity. The Fates, the daughters of Necessity, help turn the revolutions of the cosmos, the orbits of the heavens.

To this they came after going a day’s journey, and they saw there at the middle of the light the extremities of its fastenings stretched from heaven, for this light was the

⁴⁶⁴ Plato, *Republic*, 617d-e.

⁴⁶⁵ Aetius, *De Placitis Philosophorum*, 1.25.2, ‘ἀνάγκην περικεῖσθαι τῷ κόσμῳ – *anangkên perikeisthai to kosmō*’. As quoted in, Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 75 (see also n. 143).

⁴⁶⁶ Porphyry, *The Life of Pythagoras*, 41; Aristotle, *frag.* 196.

⁴⁶⁷ Parmenides, 28 B 10, 28 B 11, 28 B 12 DK.

girdle of the heavens like the undergirders of triremes, holding together in like manner the entire revolving vault. And from the extremities was stretched the spindle of Necessity, through which all the orbits turned. ... And the spindle turned on the knees of Necessity... And there were three others who sat round about at equal intervals, each one on her throne, the Fates, daughters of Necessity, clad in white vestments with filleted heads, Lachesis, and Clotho, and Atropos, who sang in unison with the music of the Sirens, Lachesis singing the things that were, Clotho the things that are, and Atropos the things that are to be. And Clotho with the touch of her right hand helped to turn the outer circumference of the spindle, pausing from time to time. Atropos with her left hand in like manner helped to turn the inner circles, and Lachesis alternately with either hand lent a hand to each.⁴⁶⁸

In the *Timaeus*, Plato presents us with Reason (νοῦς — *nous*) persuading Necessity. Necessity constrains things that become, yet not by design or purpose. Reason therefore persuades Necessity to guide Becoming towards that which is best, namely, Being.

Now our foregoing discourse, save for a few matters, has set forth the works wrought by the craftsmanship of Reason; but we must now set beside them the things that come about of Necessity. For the generation of this universe was a mixed result of the combination of Necessity and Reason. Reason overruled Necessity by persuading her to guide the greatest part of the things that become towards what is best; in that way and on that principle this universe was fashioned in the beginning by the victory of reasonable persuasion over Necessity.⁴⁶⁹

Reason is pictured here as a Divine Craftsman. He takes Necessity as his artistic medium, the clay for his cosmic-statue, and by persuasion bends and moulds the clay of Necessity into an ordered and designed cosmos. A cosmos which, as far as possible, resembles the perfect model that the craftsman has in mind. This ordering, as I shall soon demonstrate, is achieved through mathematics.

Plato correlates *Chronos* (Time) and *Anangkê* (Necessity), in the *Phaedrus*, *Republic* and *Timaeus*. It is due to the regularity of motion in the cosmos that Time (*Chronos*) is established. This regularity of motion is due to the oversight of Necessity and the Fates, which function as a constraining force that turns the spindle of the heavenly orbits. But the *regularity* of Time (*Chronos*) is due to Reason persuading Necessity to guide Becoming towards what is best — Time (*Chronos*) acting as the moving *image* of the eternity of Being.

⁴⁶⁸ Plato, *Republic*, 616b – 617d.

⁴⁶⁹ Plato, *Timaeus*, 47e – 48a. Cornford translation.

Thus Time and Necessity are inextricably coupled together in the ordering of the cosmos — just as the Orphic theogonies describe them as two serpents (or dragons) intertwined with each other upon the staff of Hermes.

6.2.3.3 The Elements

An important aspect of the world picture in the *Timaeus* is the role played by the traditional four elements: fire, water, earth and air. Plato endeavours to develop a story concerning these in which mathematics plays the fundamental role.

The use of the elements in philosophical *cosmological* speculation was already well established in the Presocratic era. Thales is reported to have spoken of water as the *archê* or original element,⁴⁷⁰ Anaximenes speaks of air,⁴⁷¹ and Heraclitus speaks of the ever-living fire,⁴⁷² and of a cycle of the four elements originating with fire.⁴⁷³ These elements are treated more systematically in Empedocles, who employs all four as the basic elements of his cosmology, being drawn together or torn apart by love and strife.⁴⁷⁴

It is likely that the Presocratic speculation concerning the elements was foreshadowed in the *theogonic* speculation of the poets. The *actors making actions* of the poems, became abstract principles, or elements, involved in a theoretical cosmology. Uranos was transformed into the heavenly fire or perhaps air, Ge into the earth, and Oceanus into water.

⁴⁷⁰ Thales, 11 A 12 DK = Aristotle, *Metaphysics*, 983b18ff., 'However, not all agree about the number and form of such a principle, but Thales, the founder of this kind of philosophy, declares it to be water. (This is why he indicated that the earth rests on water).'; 11 A 14 DK = Aristotle, *On the Heavens*, 294a28ff., 'Others say [the earth] rests on water. This is the most ancient explanation which has come down to us, and is attributed to Thales of Miletus.'

⁴⁷¹ Anaximenes, 13 B 2 DK, 'As our soul, being air, hold us together, so do breath and air surround the whole universe'.

⁴⁷² Heraclitus, 22 B 30 DK, 'This ordered universe (*cosmos*), which is the same for all, was not created by any one of the gods or of mankind, but it was ever and is and shall be ever-living Fire, kindled in measure and quenched in measure.'

⁴⁷³ Heraclitus, 22 B 76 DK, 'Fire lives the death of earth, and air lives the death of fire; water lives the death of air, earth that of water.'

⁴⁷⁴ Empedocles, 31 B 22 DK, 'For all these things — beaming Sun and Earth and heaven and Sea — are connected in harmony with their own parts...'; 31 B 71 DK, '...how from the mixture of Water, Earth, Aether and Sun (*Fire*) there came into being the forms and colours of mortal things in such numbers as now exist fitted together by Aphrodite [i.e. Love]'; 31 B 109 DK, 'We see Earth by means of Earth, Water by means of Water, divine Air by means of Air, and destructive Fire by means of Fire; Affection by means of Affection, Hate by means of baneful Hate.'

This was certainly how the later Hellenistic Stoic interpreters understood the names of the Divine. Hesiod had stated in his *Theogony*,

Chaos was first of all, but next appeared
Broad-bosomed Earth, sure standing-place for all
The gods who live on snowy Olympus' peak.⁴⁷⁵

Zeno of Citium (c. 332 – 265 BC) is reported to have interpreted Hesiod in the following way,

...Hesiod's "Chaos" is water, from the settlement of which mud comes into being, and when that solidifies the earth is established.⁴⁷⁶

This immediately bears upon the Hieronymean theogony, and demonstrates that the two are closely related. Damascius states,

Originally there was water, he (Orpheus) says, and mud, from which the earth solidified: he posits these two as first principles, water and earth ...⁴⁷⁷

This is further confirmed by Athenagoras,

Orpheus (who, moreover, was the first to invent their names, and recounted their births, and narrated the exploits of each, and is believed by them to treat with greater truth than others of divine things, whom Homer himself follows in most matters, especially in reference to the gods) — he, too, has fixed their first origin to be from water: —

"Oceanus, the origin of all."

For, according to him, water was the beginning of all things, and from water mud was formed, and from both was produced an animal, a dragon with the head of a lion growing to it, and between the two heads there was the face of a God, named Heracles and Kronos.⁴⁷⁸

Both the Hieronymean theogony, and Thales, posit water as the first principle of the cosmos. This idea, in turn, can be traced to an original motif in Ancient Near Eastern mythology.⁴⁷⁹

⁴⁷⁵ Hesiod, *Theogony*, 116ff. Wender translation.

⁴⁷⁶ *Scholium A.R.* 1.496-8b = *Stoicorum veterum fragmenta*, i, 29.17. As cited by West, *The Orphic Poems*, p. 183.

⁴⁷⁷ Damascius, *On the First Principles*, 123ff. As translated and cited by West, *The Orphic Poems*, p. 178.

⁴⁷⁸ Athenagoras of Athens, *Apology*, 18. From, Roberts and Donaldson (eds.), *The Ante-Nicene Fathers*, Vol.2.

⁴⁷⁹ See, West, *The Orphic Poems*, pp. 183-190. West traces the idea of an original primordial water, to the mythologies of the ancient Sumerians (Nammu the fresh water goddess and mother of heaven and earth), Babylonians (Apsu and Tiamat – the water deities originally mingled as one), Hebrews (the tehom or watery abyss of *Genesis*), and Egyptians (Nun, the primordial mass of waters, containing Atum the self-created one, who generates Re the Time-god and lord of eternity).

Specifically, it is a *dual pair*, water and earth, that form the original elements in the Orphic Hieronymean theogony. Damascius portrays these, not as deities, but as *elements*. To this there occurs a strong parallel in the *Timaeus*. When Timaeus first discusses the elements, Plato has him refer to an original *pair*, namely, fire and earth.

Now that which comes to be must be bodily, and so visible and tangible; and nothing can be visible without fire, or tangible without something solid, and nothing is solid without earth. Hence the god, when he began to put together the body of the universe, set about making it of fire and earth.⁴⁸⁰

From these two original elements Plato derives the need for the remaining two — water and air. Importantly, this is because of the *mathematical* need for harmony between the fire — earth duality, and the need for this harmony to be geometrically constructed within a three dimensional matrix.

But two things alone cannot be satisfactorily united without a third; for there must be some bond between them drawing them together. And of all the bonds the best is that which makes itself and the terms it connects a unity in the fullest sense; and it is of the nature of a continued geometrical proportion to effect this most perfectly. ... Now if it had been required that the body of the universe should be a plane surface with no depth, a single mean would have been enough to connect its companions and itself; but in fact the world was to be solid in form, and solids are always conjoined, not by one mean, but by two. Accordingly the god set water and air between fire and earth, and made them, so far as was possible, proportional to one another...⁴⁸¹

That fire and earth are the original two elements may in fact be correlated to the *Timaeus* theogony, where Heaven and Earth are the original divine parents.⁴⁸² Later in this chapter I discuss the exact nature of this geometric mean which binds the elements together.

⁴⁸⁰ Plato, *Timaeus*, 31b. Cornford translation.

⁴⁸¹ Plato, *Timaeus*, 31b – 32b. Cornford translation.

⁴⁸² The relation between Heaven and Fire is at least a plausible assumption. Cornford himself assumes such when he states, 'Fire and earth had been commonly regarded as the two extreme elements, since fire belongs to the heavens, and air and water are between Heaven and Earth.' In, Cornford, *Plato's Cosmology*, p. 45.

6.3 Being, Becoming, and the Receptacle-Space

6.3.1 Myth as the Language of Becoming

Given then, that the *Timaeus*, as a whole, can best be understood as a philosophically transformed Orphic cosmogony, we are now in a position to analyse the crucial role that mathematics plays in this cosmogony, to mediate between Being and Becoming.

Regarding the cosmogonic myth of the *Timaeus*, Plato has Timaeus state that when discussing the nature of the cosmos (i.e. Becoming), the account given can only ever be a 'likely account' (*eikôs logos*), or a 'likely story' (*eikôs mythos*).⁴⁸³ The reason for this is that we can never acquire true knowledge (*epistêmê*) about Becoming. At best, we may only hold an opinion (*doxa*).

But when they express only the copy or likeness and not the eternal things themselves, they need only be likely and analogous to the former words. As being is to becoming, so truth is to belief. If then, Socrates, amidst the many opinions about the gods and the generation of the universe, we are not able to give notions which are altogether and in every respect exact and consistent with one another, do not be surprised. Enough if we adduce probabilities as likely as any others, for we must remember that I who am the speaker and you who are the judges are only mortal men, and we ought to accept the tale which is probable and inquire no further.⁴⁸⁴

This, of course, raises important questions concerning how the *Timaeus* is to be read. Was Plato really intending to tell us something (albeit only a *likely* something) about an actual Divine Craftsman, and the process by which he generated the cosmos? Or did Plato desire us to understand the dialogue much more symbolically, using the cosmogonic story only as a medium to express the unchanging realities behind the existing cosmos?

Aristotle, it is thought, understood Plato to be speaking *literally* about the process of cosmic generation. In this regard he criticised Plato for maintaining that time had a beginning, a view expressed in the 'likely myth' of the *Timaeus*.⁴⁸⁵

⁴⁸³ Plato, *Timaeus*, 29d. For a discussion on the nature of this 'likely story' see, Zeyl, *Plato – Timaeus*, pp. xxii – xxiii, xxxii – xxxiii.

⁴⁸⁴ Plato, *Timaeus*, 29c-d.

⁴⁸⁵ See, Aristotle, *Physics*, 251b14-26 (Cf. Plato, *Timaeus*, 38b).

Xenocrates (396 – 314 BC), however, understood Plato to be speaking more symbolically. The ‘likely myth’ does not describe an actual process, but should rather be seen as a didactic tool.⁴⁸⁶ Likewise, Proclus reports that Xenocrates’ successor at the Academy, Crantor (c. 330 – 270 BC), also maintained the symbolic view, which aside from Plutarch and Atticus, dominated among Academic interpretations even to the time of Plotinus (c. AD 204 – 270).⁴⁸⁷ Among contemporary scholars, Zeyl cites Taylor, Cornford, Cherniss, and Taran, as holding to a symbolic interpretation, whereas Vlastos, Hackforth, Sorabji, and Robinson maintain a more literal view.⁴⁸⁸

As Zeyl rightly notes, however, the distinction that Plato makes here concerning the ‘likely story’ is not so much between literal and metaphorical, but rather between ‘apodeictic certainty and plausibility — a distinction that corresponds to the one between intelligible and empirical subject matters’.⁴⁸⁹ In this regard then, the various components within the *Timaeus* account are in fact open to interpretation in either direction.

Plato’s adoption of the idea of a ‘likely’ (*eikôs*) account, is anticipated in the tradition from Hesiod through Parmenides. The Hesiodic *Theogony* itself begins,

From the Heliconian Muses let us begin to sing...
And one day they taught Hesiod glorious song
while he was shepherding lambs under holy Helicon,
and this word first the goddesses said to me —
the Muses of Olympus, daughters of Zeus who holds the aegis:

‘Shepherds of the wilderness, wretched things of shame,
mere bellies, we know how to speak many false things
as though they were true; but we know, when we will,
to utter true things.’⁴⁹⁰

The Muses, the daughters of memory, are able to ‘speak many false things as though they were true’,⁴⁹¹ as well as ‘utter true things’. This dual ability of the Muses to

⁴⁸⁶ That Xenophanes held this position is derived from the allusion to him in Aristotle, *On the Heavens*, 279b32-280a1, ‘Some of those who hold that the world, though indestructible, was yet generated, try to support their case by a parallel which is illusory. They say that in their statements about its generation they are doing what geometers do when they construct their figures, not implying that the universe really had a beginning, but for didactic reasons facilitating understanding by exhibiting the object, like the figure, as in course of formation.’

⁴⁸⁷ See, Zeyl, *Plato – Timaeus*, p. xxi.

⁴⁸⁸ Zeyl, *Plato – Timaeus*, p. xxi. For a further discussion on the debate between a symbolic – literal interpretation of the *Timaeus*, see, Zeyl, *Plato – Timaeus*, pp. xx – xxv.

⁴⁸⁹ Zeyl, *Plato – Timaeus*, p. xxxii.

⁴⁹⁰ Hesiod, *Theogony* 1-28, trans. H.G. Evelyn-White.

provide a semblance of truth to false things, as well as the truth itself, is developed by Parmenides in his *Way of Truth* poem. In this poem, Parmenides is led in a chariot by maiden goddesses, the daughters of the Sun,⁴⁹² conveyed as far as his desire would reach. They arrive at the goddess Justice, who addresses Parmenides,

Young man, companion of the immortal charioteers, who comest by the help of the steeds which bring thee to our dwelling: welcome! — since no evil fate has despatched thee on thy journey by this road (for truly it is far from the path trodden by mankind); no, it is divine command and Right. Thou shalt inquire into everything: both the motionless heart of well-rounded Truth, and also the opinions of mortals, in which there is no true reliability...⁴⁹³

Here the *Way of Truth*, is contrasted with the *Way of Opinion*, or that which is true is contrasted with that which only has the semblance of truth but is really false.

The *Way of Truth* is that of Being, ascertained only by reason. The *Way of Opinion* is that of Becoming, ascertained by the senses.

You must debar your thought from this way of search, nor let ordinary experience in its variety force you along this way, (namely that of allowing) the eye, sightless as it is, and the ear, full of sound, and the tongue, to rule; but (you must) judge by means of Reason [logos] the much-contested proof which is expounded by me.⁴⁹⁴

Sense experience is strictly limited to opinion (*doxa*). We simply can never acquire any truth, or knowledge (*epistêmê*), concerning the senses. This idea is also reflected in Xenophanes, when he stated,

And as for certain truth, no man has seen it, nor will there ever be a man who knows about the gods and about all the things I speak of. For if he succeeds to the full in saying what is completely true, nevertheless he himself does not know; and Opinion (seeming) is fixed upon all things.

Let these things be believed as resembling the truth.⁴⁹⁵

For Xenophanes, our belief about such things as the gods and the cosmos, will only ever be opinion. We must believe such things as *resembling the truth*.

This is precisely the sentiment echoed here in the *Timaeus*. As we can only ever have an opinion about Becoming, our speculations concerning it will only ever be a *likely*

⁴⁹¹ Compare also with Homer, *Odyssey*, 19:203.

⁴⁹² That Apollo was often worshipped as the sun god, Helios, would establish these goddesses as *Muses*.

⁴⁹³ Parmenides, 28 B 1 DK.

⁴⁹⁴ Parmenides, 28 B 7-8 DK.

⁴⁹⁵ Xenophanes, 21 B 34-35 DK.

account. It is this epistemological situation that Plato alludes to when he proclaims that our approach to the things of sense-experience (as opposed to the Forms, or objects of rational intellection), must bear the same limitations as their subject matter. As the things of sense-experience are unstable and shifting, so too must be any story we tell about their nature. This is in contrast to the Forms, the objects of rational intellection. As these are stable and unchanging, then an account of them may be true — in the sense of possessing a fixed certainty, enabling genuine *epistêmê* (knowledge).⁴⁹⁶

The use of a cosmogonic myth by Plato then, given these constraints, is entirely in keeping with his purpose. Through it, he is able to provide a ‘likely story’ concerning the cosmos of sense-experience, and at the same time suggest an account of the true reality behind it. This account may ultimately have been filled out by a ‘true account’ (rather than merely a ‘likely account’) contained in the oral dialectic instruction of the Academy. This would have been possible, in that Plato’s subject matter would no longer be the nature of the cosmos of sense-experience, but rather the eternal nature of unchanging Being, and First Principles — subject matter that admits of an unchanging, stable, *true account*.⁴⁹⁷

6.3.2 Being Imaged into the Receptacle

Plato presents us with a myth concerning how Becoming first came about. In terms of the drama of the myth, Plato introduces us to an original Divine Craftsman (*Reason* or *Mind*), who is confronted with an initial Disorder.⁴⁹⁸ This Divine Craftsman was good

⁴⁹⁶ See, Zeyl, *Plato – Timaeus*, p. xxxii, ‘Probably what Plato means is that *within the constraints in which the story must be told* something like this account is the most plausible one can hope for... The metaphysical constraint is that this world is caught up in unceasing becoming: its constituents are in flux, and any account of it cannot fail to reflect its elusiveness. The epistemological constraint is that this world is a sense object (or a collection of sense objects), and any account of it must reflect a grasp of it that is less than that absolutely firm grasp which we have of intelligible objects.’ See also, Szlezak, *Reading Plato*, p. 97, ‘In this sense the whole essay of natural philosophy in the *Timaeus* is described as a “probable myth” (29d, 68d, 69b), because here the ontological status of the subject rules out total substantiation or total certainty of substantiation.’

⁴⁹⁷ That Plato reserved an oral dialectical philosophy (the ‘Unwritten Doctrines’) for those able to receive it, over and above his written dialogues, is argued by the Tübingen school of Platonic interpretation. See, Szlezak, *Reading Plato*; Kramer, *Plato and the foundations of Metaphysics* (in particular see pp. 110-111 regarding the *Timaeus*).

⁴⁹⁸ For a discussion on the nature of the Divine Craftsman (or Demiurge), see, Zeyl, *Plato – Timaeus*, pp. xxxiv – xxxvii. See also, Dillon, *The Middle Platonists*, pp. 6-7; Dillon, *The Heirs of Plato*, pp. 24-25. Dillon notes that the identity of the Demiurge was subject to confusion among the early Academic and later

and, being without jealousy, desired that this Disorder be conformed as much as possible to himself, namely, the good. This entailed bringing the Disorder into a rational order (a *cosmos*), just as the Divine Craftsman himself was rational.

Let us, then, state for what reason becoming and this universe were framed by him who framed them. He was good; and in the good no jealousy in any matter can ever arise. So, being without jealousy, he desired that all things should come as near as possible to being like himself. That this is the supremely valid principle of becoming and of the order of the world, we shall most surely be right to accept from men of understanding. Desiring, then, that all things should be good and, so far as might be, nothing imperfect, the god took over all that is visible — not at rest, but in discordant and unordered motion — and brought it from disorder into order, since he judged that order was in every way the better.⁴⁹⁹

Good then, for Plato, is closely identified with the *Rational*. For Disorder to become good, as far as possible, means that it must become ordered. In the *Timaeus* this specifically means being ordered according to the structures and proportions of mathematics.

Later in the *Timaeus*, Plato returns to the subject of the Disorder. There he speaks of the *Receptacle* or nurse of Becoming. In so doing, Plato distinguishes, for the first time in his dialogues, *three* separate aspects within his world-picture. There is Being (the eternally existent model), Becoming (the copy or image of the model), and now there is also the Receptacle, the mirror into which the model (Being) is imaged.⁵⁰⁰

Our new starting-point in describing the universe must, however, be a fuller classification than we made before. We then distinguished two things; but now a third must be pointed out. For our earlier discourse the two were sufficient: one postulated as model, intelligible and always unchangingly real; second, a copy of this model, which becomes and is visible. A third we did not then distinguish, thinking that the two would suffice; but now, it seems, the argument compels us to attempt to bring to light and describe a form difficult and obscure. What nature must we, then, conceive it to possess and what part does it play? This, more than anything else: that it is the Receptacle — as it were, the nurse — of all Becoming.⁵⁰¹

Neoplatonic philosophers. He writes, 'Initially, the Demiurge seems to have been taken as the supreme principle, active in the world, but when under Neopythagorean influence the One, as a totally transcendent first principle, was placed above the active principle, the Demiurge came to be seen as a second God, Intellect (*nous*), the agent or logos of the Supreme god...', in, Dillon, *The Middle Platonists*, p. 7.

⁴⁹⁹ Plato, *Timaeus*, 29d – 30a. Cornford translation.

⁵⁰⁰ Blackson, *Inquiry, Forms, and Substances*, pp. 133-170, argues that Plato 'introduces the Receptacle in an effort to solve a certain problem concerning the stuffs of the four kinds that are "starting points" (*ἀρχαί*) in traditional Greek cosmologies.', p. 135.

⁵⁰¹ Plato, *Timaeus*, 48e – 49a. Cornford translation.

The original Disorder is associated with the Receptacle. Both are *given*, or *original* to the cosmic situation. Neither is derived from Being itself. Although we should be cautious not to *identify* completely these two aspects, we nevertheless possess reasonable grounds for *associating* them with each other.

Plato elaborates upon this Receptacle and compares it to a man who models many things out of the same lump of gold.

Suppose a man had moulded figures of all sorts out of gold, and were unceasingly to remould each into all the rest: then, if you should point to one of them and ask what it was, much the safest answer in respect of truth would be to say 'gold', and never to speak of a triangle or any of the other figures that were coming to be in it as things that have being, since they are changing even while one is asserting their existence. Rather one should be content if they so much as consent to accept the description 'what is of such and such a quality' with any certainty. Now the same thing must be said of that nature which receives all bodies. It must be called always the same; for it never departs from its own character; since it is always receiving all things, and never in any way whatsoever takes on any character that is like any of the things that enter it: by nature it is there as a matrix for everything, and is stirred and diversified by the things that enter it, and on their account it *appears* to have different qualities at different times; But the things which enter into and go out of her are the copies of eternal realities modelled after their patterns in a wonderful and mysterious manner.⁵⁰²

The Receptacle receives impressions from the eternal Model (Being), and in so doing Becoming is engendered. One must not think, however, that Becoming is constructed *out of* the Receptacle. The Receptacle is that 'in which [ἐν ᾧ — *en ho*] all of them are always coming to be',⁵⁰³ it is not that 'out of which' (ἐξ οὗ — *ex hou*) they are being made.⁵⁰⁴ The Receptacle, unlike Becoming, always remains the same. We may truly employ the terms 'this' or 'that' to speak of the Receptacle, as these terms imply something that remains constant, not changing from one thing into another. They suggest a single *unchanging* referent, something that Becoming is not. If we desired to apply these words to Becoming, we would have to say 'it *was* this, but is *now* that, but even *now* is not that but rather this new thing', and so forth. With Becoming there is no unchanging referent for the words to apply to, but with the Receptacle we *do* acquire

⁵⁰² Plato, *Timaeus*, 50a-c. Composite of Cornford and Jowett translations.

⁵⁰³ Plato, *Timaeus*, 49e. Cornford translation.

⁵⁰⁴ See, Cornford, *Plato's Cosmology*, p. 181.

sameness, and unchangingness. The Receptacle behaves in this constant manner, it 'never departs from its own character'.⁵⁰⁵

Only in speaking of that in which all of them are always coming to be, making their appearance and again vanishing out of it, may we use the words 'this' or 'that'.⁵⁰⁶

To adopt a different analogy, the Receptacle can be likened to a mirror.⁵⁰⁷ When a person looks at their face in a mirror, you have the original face (the model), as well as the image or copy of the face in the mirror, and you have the mirror itself, the receptacle that receives the image *in* it. The mirror itself *does not* change or alter. The images that are received into the mirror *do* change. Furthermore, there is an important distinction between the original face and its image in a mirror. Remove the face, and the image will also disappear. However, if you remove the image, by turning off the lights for example, the original face is still there. There is a one way dependency of the image upon the original model.

A similarity exists with Plato's world picture at this point. There is a one way dependency of Becoming upon Being. This parallels the dependency of the image upon the mirror. Remove the mirror and the image disappears. Remove the Receptacle and Becoming disappears. Both Being *and* the Receptacle are needed in order to engender Becoming.

The Divine Craftsman then, has his model, and in encountering the Receptacle, he sees that the Receptacle conveys Disorder. He therefore images the model (Being) into

⁵⁰⁵ Plato, *Timaeus*, 50b. Cornford translation.

⁵⁰⁶ Plato, *Timaeus*, 49e – 50a. Cornford translation. In 1954 Cherniss proposed an alternative way to translate the passage *Timaeus*, 49c7 – 50a4. For Cherniss' translation in context of the dialogue see, Cooper, (ed.), *Plato – Complete Works*, "Timaeus", Zeyl trans, pp. 1252-1253, n. 27. For a discussion on the relevant differences between these two readings see, Zeyl, *Plato – Timaeus*, pp. lvi – lxiv. Zeyl notes that prior to 1954 the traditional reading was almost universally followed. Subsequent to Cherniss, the alternative reading has been offered by Mills, and Mohr, as well as being defended by Lee. Zeyl himself, along with Gully and M.L. Gill, criticises this new alternative reading in favour of the traditional reading. See, Zeyl, *Plato – Timaeus*, p. lvi, n. 120. One telling objection levelled against the alternative reading is that it suggests a fourth ontological category in distinction to Being, sensible particulars, and the Receptacle. But Plato only speaks in the *Timaeus* of these three things, not a fourth thing, as the alternative reading might suggest (*Timaeus*, 48e5-49a, 50c7-d4, 51e6-52b2). Zeyl notes that neither Cherniss nor Lee appear to have noted this objection. Possible responses to the objection, Zeyl further notes, have been unsatisfactory. See, Zeyl, *Plato – Timaeus*, p. lx. I side with Zeyl in favouring the traditional reading, which I have followed in this thesis, adopting the Cornford translation.

the Receptacle and in so doing brings order out of the original Disorder, by transforming it into an ordered Becoming, a cosmos.

Here we observe why it was important not to identify the Receptacle with the original Disorder of *Timaeus* 30a. The Receptacle has no qualities of its own. In and of itself Plato describes it as *invisible* and *characterless*.

In the same way, that which is duly to receive over its whole extent and many times over all the likenesses of the intelligible and eternal things ought in its own nature to be free of all the characters. For this reason, then, the mother and Receptacle of what has come to be visible and otherwise sensible must not be called earth or air or fire or water, nor any of their compounds or components; but we shall not be deceived if we call it a nature invisible and characterless, all-receiving, partaking in some very puzzling way of the intelligible and very hard to apprehend.⁵⁰⁸

The Receptacle is the *mother of what has come to be visible*. Regarding the original Disorder, Plato had described it as *the visible*. He stated,

... the god took over all that is *visible* — not at rest, but in discordant and unordered motion — and brought it from disorder into order, since he judged that order was in every way the better.⁵⁰⁹

We have, then, an original Receptacle that has *within it* a visible disorder. The original Disorder and the Receptacle are *associated*, but not identified. Both *together* comprise the original situation into which the Divine Craftsman imaged Being, and brought about order.

Plato identifies this Receptacle with what he calls χώρα — *chôra*, which is normally translated as *Space*.

This being so, we must agree that there is, first, the unchanging Form, ungenerated and indestructible, which neither receives anything else into itself from elsewhere nor itself enters into anything else anywhere, invisible and otherwise imperceptible; that, in fact, which thinking has for its object.

Second is that which bears the same name and is like that Form; is sensible; is brought into existence; is perpetually in motion, coming to be in a certain place and again vanishing out of it; and is to be apprehended by belief involving perception.

Third is Space [χώρα — *chôra*], which is everlasting, not admitting destruction; providing a situation for all things that come into being, but itself apprehended without the senses by a sort of bastard reasoning, and hardly an object of belief.

⁵⁰⁷ Plato himself goes on to make an analogy out of a family. The father is like the original Model (Being). The mother is like the Receptacle, receiving the seed of the father. The child (offspring) is like the image (Becoming). See, *Timaeus*, 50c-d.

⁵⁰⁸ Plato, *Timaeus*, 51a-b. Cornford translation.

⁵⁰⁹ Plato, *Timaeus*, 30a. Cornford translation.

This, indeed, is that which we look upon as in a dream and say that anything that is must needs be in some place and occupy some room, and that what is not somewhere in earth or heaven is nothing. ... [the image] is the ever moving semblance of something else [i.e. the model — Being], it is proper that it should come to be *in* something else. Clinging in some sort to existence on pain of being nothing at all...⁵¹⁰

Here, it is tempting to interpret *Space* as the position which something *can occupy*. The Presocratics, in particular the Atomists, speak of the void (*kenon*) as the non-being in-between the things that exist. Aristotle reports that,

Leucippus and his associate Democritus say that the full and the empty are the elements, calling the one being and the other non-being — the full and solid being, the empty non-being (that is why they say that what is is no more than what is not, because body no more is than the void).⁵¹¹

Plato appears to offer an understanding of Space that differs from the concept of the Void. He describes the visible, the images of Being, as ‘must needs be in some place and occupy some room’ and ‘proper that it should come to be in something else’. The Receptacle, then, functions as the Space, the matrix, *into* which Becoming is imaged. It does not function as the Void of the Atomists, which fills in the gaps between the atoms.

The Receptacle-Space is correlated with Being. Being is ‘ungenerated and indestructible’, Space is ‘everlasting, not admitting destruction’. Both are *original* and *given* in the *Timaeus* creation-myth. Yet epistemologically they are different. Being is the object of knowledge. Space is ‘hardly an object of belief’ (as is Becoming), it is apprehended ‘without the senses’. Yet it does not form a part of Being (the Forms), and as such it is at best apprehended by a ‘sort of bastard reasoning’. Plato tells us no more about the epistemological status of Space than this. Indeed, if he surmises correctly, then he could not explain it in any more rational terms, or in terms of sense-experience, as it is in a category separate from these.

Plato describes the original condition of the Receptacle-Space, as having received the characters of the four elements — fire, water, earth and air. But these were in a constant flux of movement, shaken by the Receptacle-Space, such that they were in

⁵¹⁰ Plato, *Timaeus*, 51e – 52c. Cornford translation.

⁵¹¹ Aristotle, *Metaphysics*, 985b5ff.

complete disarray and disorder. That is to say, there were no mathematical proportions or measures relating to them. There was nothing distinct, no cosmos or rational order.

Now the nurse of Becoming, being made watery and fiery and receiving the characters of earth and air, and qualified by all the other affections that go with these, had every sort of diverse appearance to the sight; but because it was filled with powers that were neither alike nor evenly balanced, there was no equipoise in any region of it; but it was everywhere swayed unevenly and shaken by these things, and by its motion shook them in turn. ... In the same way at that time the four kinds were shaken by the Recipient, which itself was in motion like an instrument for shaking ... whereby the different kinds came to have different regions, even before the ordered whole consisting of them came to be. Before that, all these kinds were without proportion or measure. Fire, water, earth, and air possessed indeed some vestiges of their own nature, but were altogether in such a condition as we should expect for anything when deity is absent from it.⁵¹²

This was the original Disorder encountered by the Divine Craftsman. It should be noted that although the description of this original Disorder involves fire, water, and so forth, these should not be understood as the images of Being, or in terms of the mathematical order Plato discloses elsewhere. Rather, they are mere *vestiges* (ἰχνη — *ichnê*) of such things,

For at first they were without any such proportion, save by mere chance, nor was there anything deserving to be called by the names we now use — fire, water, and the rest; but all these he first set in order, and then framed out of them the universe...⁵¹³

The Disorder was a mere vestige of the elements. The elements properly understood are generated by the Divine Craftsman, via mathematical proportion, into the Receptacle-Space.⁵¹⁴

6.4 Mathematics as the Way of Imaging

6.4.1 The One, and the Indefinite Dyad

Plato takes an Orphic theogony and transforms it mathematically. The theogonic myth is retold, but with mathematics as the medium through which the Divine Craftsman

⁵¹² Plato, *Timaeus*, 52d – 53b. Cornford translation.

⁵¹³ Plato, *Timaeus*, 69b. Cornford translation.

images Being into this original Receptacle-Space. Mathematics thus plays a crucial role in the creation myth of the *Timaeus*. It forges the link between Being and Becoming, and is the way in which Being is imaged.

In the ancient reports regarding Plato's famous lecture *On the Good*, it is testified that for Plato, the first principles of things were the One and the Indefinite Dyad.

Plato used to treat the One and the dyad as the first principles both of numbers and of all existing things, as Aristotle says in his work *On the Good*.⁵¹⁵

Alexander says that according to Plato the first principles of all things, and of the Ideas themselves, are the One and the indefinite dyad, which he used to call great and small, as Aristotle relates in his work *On the Good*. One might gather this also from Speusippus and Xenocrates and the others who were present at Plato's lecture on the Good.⁵¹⁶

They say that Plato maintained that the One and the indefinite dyad were the first principles of sensible things as well.⁵¹⁷

If we correlate these testimonies with the creation myth of the *Timaeus*, certain conclusions seem to suggest themselves. Aristoxenus reports that for Plato the One and the Good were identified.

This, as Aristotle was always saying, was the experience of most of those who heard Plato's lecture *On the Good*. ... and to crown it all about the thesis that the good is one.⁵¹⁸

Plato extensively discussed the nature of the Good in the *Republic*. There he concluded that the Good is itself beyond Being,⁵¹⁹ beyond the intelligible models (Forms) which are imaged into the world of Becoming. Plato compares the Good to the sun. Just as the sun causes us to see visible things, so the Good causes us to know intelligible things.⁵²⁰ Indeed the very existence and essence of Being is derived from the Good.

⁵¹⁴ For a discussion of how the differences between the traditional and alternative readings of *Timaeus*, 49c7 – 50a4 might effect ones interpretation of the nature of the Receptacle, see, Zeyl, *Plato – Timaeus*, pp. lxi – lxiv.

⁵¹⁵ Alexander, *Commentarius in Metaphysica*, 55.20-56.35 = Aristotle, *frag.* 28.

⁵¹⁶ Simplicius, *Commentarius in Physica*, 151.6-11 = Aristotle, *frag.* 28.

⁵¹⁷ Simplicius, *Commentarius in Physica*, 453.25-30 = Aristotle, *frag.* 28.

⁵¹⁸ Aristoxenus, *Elementa Harmonica*, II 30-31 = Aristotle, *frag.* 26.

⁵¹⁹ Plato, *Republic*, 509b.

⁵²⁰ Plato, *Republic*, 508b-c, 'Is it not also true that the sun is not vision, yet as being the cause thereof is beheld by vision itself? ... This, then, you must understand that I meant by the offspring of the good which the good begot to stand in a proportion with itself. As the good is in the intelligible region to reason and the objects of reason, so is this in the visible world to vision and the objects of vision.'

In like manner, then, you are to say that the objects of knowledge not only receive from the presence of the good their being known, but their very existence and essence is derived from it.⁵²¹

If we compare this to Plato's description of the mythic Divine Craftsman we discover striking similarities. The Divine Craftsman is also described as all Good.

Let us, then, state for what reason becoming and this universe were framed by him who framed them. He was good; and in the good no jealousy in any matter can ever arise. ... nor can it ever be, permitted that the work of the supremely good should be anything but that which is best.⁵²²

Let us identify, then, the *Good* of the *Republic* with the *Good* Divine Craftsman of the *Timaeus*. This Good is beyond Being, and uses Being as the model to image into the Receptacle.

Further to this, however, let us identify this Good with the One spoken of by Alexander and Simplicius. This certainly comports well with the *Republic* and the *Timaeus*. Alexander stated that 'the One is the first principle of *all things*', Simplicius that 'the first principles of *all things*, and of the *Ideas themselves*, are the One...'. Aristotle also says of Plato that,

... the Forms are the cause of the essence of other things, and the One is the cause of the essence of the Forms.⁵²³

In the *Republic* the Forms (or Ideas) have their 'very existence and essence ... derived from' the Good, or the One as we now identify it. For the *Timaeus* the Divine Craftsman (the Good or the One) is the creator of the cosmos. This identification, then, appears *prima facie* textually justified.

Simplicius testifies, however, that for Plato the One was not the only first principle of all things. He goes on specifically to state, 'the first principles of all things, and of the Ideas themselves, are the One *and the indefinite dyad*' and 'that the One *and the indefinite dyad* were the first principles of sensible things as well', just as Alexander stated, 'Plato used to treat the One *and the dyad* as the first principles both of numbers and of all existing things'. What, then, can we make of this Indefinite Dyad?

⁵²¹ Plato, *Republic*, 509b.

⁵²² Plato, *Timaeus*, 29d – 30a. Cornford translation.

⁵²³ Aristotle, *Metaphysics*, 988b10.

Alexander and Simplicius spoke in the following way concerning it,

For, since there are in numbers both the One and that which is other than the One (i.e. the many and the few), he assumed that the first thing there is in number, apart from the One, is the first principle both of the many and of the few. Now the dyad is the first thing apart from the One, having in itself both manyness and fewness. ... he assigned equality to the monad, and inequality to excess and defect; for inequality involves two things, a great and a small, which are excessive and defective. This is why he called it an indefinite dyad — because neither the excessive nor the exceeded is, as such, definite; they are indefinite and unlimited.⁵²⁴

And the indefinite dyad, which he used to call great and small ...⁵²⁵

He placed the indefinite dyad also among the objects of thought and said it was unlimited, and he made the great and the small first principles and said they were unlimited.⁵²⁶

... practically all contraries are referred to the one and plurality as their first principle.⁵²⁷

The Indefinite Dyad is called, 'great and small', 'unequal', 'excess', 'defect', 'indefinite', 'unlimited', 'plurality'. As the Dyad is other than the One (or the Good), it is for this reason often associated with *evil*, or better, the *privation* of the Good.

Aristotle comments,

Now we discuss matter and privation ... the privation of its own nature is not; ... They, on the other hand, identify their Great and Small [i.e. the Indefinite Dyad] alike with what is not, and that whether they are taken together as one or separately. ... for even if one philosopher [i.e. Plato] makes a dyad of it, which he calls Great and Small, the effect is the same; for he overlooked the other nature. For the one which persists is a joint cause, with the form, of what comes to be — a mother, as it were. But the other part of the contrariety may often seem, if you concentrate your attention on it as an evil agent, not to exist at all.⁵²⁸

This description bears resemblance to the original Disorder with which the Divine Craftsman found himself confronted. The *Timaeus* describes this as 'not at rest, but in discordant and unordered motion', 'disorder'⁵²⁹, '*appears* to have different qualities at different times'⁵³⁰, 'had every sort of diverse appearance', 'filled with powers that were neither alike nor evenly balanced', 'everywhere swayed and unevenly shaken',

⁵²⁴ Alexander, *Commentaries in Metaphysica* 55.20-56.35 = Aristotle, *frag.* 28.

⁵²⁵ Simplicius, *Commentaries in Physica* 151:6-11 = Aristotle, *frag.* 28.

⁵²⁶ Simplicius, *Commentaries in Physica* 453.25-30 = Aristotle, *frag.* 28.

⁵²⁷ Alexander, *Commentaries in Metaphysica* 20:17-20 = Aristotle, *frag.* 31.

⁵²⁸ Aristotle, *Physics*, 192a4ff.

⁵²⁹ Plato, *Timaeus*, 30a. Cornford translation.

⁵³⁰ Plato, *Timaeus*, 50c. Cornford translation

'perpetually being separated and carried in different directions'.⁵³¹ In addition to this it is something original, *other than* the Divine Craftsman, and *other than* the model (Being) which he used to fashion Becoming,⁵³² and hence, *other than* the Good. It is one of the original things, along with the Divine craftsman, that were involved in fashioning the cosmos. The Divine Craftsman (the One, the Good) was the father, the Receptacle-Space (comprising also the original Disorder within it) functioned as a mother.⁵³³ The two stand as the *first principles* of the cosmos.

It would appear *prima facie* reasonable then, to identify the Receptacle-Space/Disorder complex, as the Indefinite Dyad.⁵³⁴

The dyadic tension within this Indefinite Dyad is even noted by Plato, where he speaks of the original Disorder being separated into two polarised regions,

... but because it [i.e. the Receptacle] was filled with powers that were neither alike nor evenly balanced, there was no equipoise in any region of it ... And they, being thus moved, were perpetually being separated and carried in different directions ... the dense and heavy things one way, while the rare and light are carried to another place and settle there. ... and it separated the most unlike kinds farthest apart from one another, and thrust the most alike closest together; whereby the different kinds came to have different regions, even before the ordered whole consisting of them came to be.⁵³⁵

In this passage Plato speaks of the Disorder as being shaken into two directions — a dyad, the Great (the dense and heavy) being rent asunder from the Small (the rare and light). In fact any extension represents a dyadic movement in two opposite directions from a centre. Even more so with this original Disorder, which had no point of balance, but everywhere was in tension with itself.

Furthermore, regarding the epistemological aspect, Simplicius states that Plato 'placed the indefinite dyad also among the objects of thought'.⁵³⁶ Plato likewise speaks of

⁵³¹ Plato, *Timaeus*, 52e. Cornford translation

⁵³² Compare this with, Plato, *Timaeus*, 51e – 52b.

⁵³³ Plato, *Timaeus*, 50c-d.

⁵³⁴ Dillon notes this identity, in, Dillon, *The Heirs of Plato*, p. 19, 'The Indefinite Dyad is primarily the basic unlimitedness or 'otherness' on which the One acts, but it is also the irrational aspect of the soul, and again the substrate of the physical world, represented by the "receptacle" of the *Timaeus*.' For a contrasting view that identifies the unlimited with the ordered triangular bodies, and for a discussion of the nature of Becoming in general in the *Timaeus*, see, Silverman, *The Dialect of Essence*, pp. 246-284.

⁵³⁵ Plato, *Timaeus*, 52e – 53a. Cornford translation.

⁵³⁶ Simplicius, *Commentarius in Physica* 453.25-30 = Aristotle, *frag.* 28.

the Receptacle-Space as 'itself being apprehended without the senses' That is to say, we do not apprehend it by means of *doxa* (opinion) as we do the objects of sense perception. Rather, in distinction from the type of true knowledge or thought we have of Being, the Receptacle-Space is only apprehended by a 'sort of bastard reasoning'. It is a type of object of thought, if you will, albeit only in a bastardised sense.

The primary difficulty with this identification lies in the nature of Being, i.e. the Forms. The above testimony regarding the One and the Indefinite Dyad, stipulates that they *both* function as first principles of the Forms (or the Ideas) themselves.⁵³⁷ If the Indefinite Dyad is identified with the Receptacle, then this would mean that the Forms are somehow derivative on both the Divine Craftsman (the One), and the Receptacle (the Indefinite Dyad).

Is this suggestion plausible, however? In terms of the *Timaeus* story, there is a certain teleological, or functional, dependence (or derivation) of the Forms, upon the Divine Craftsman and the Receptacle. It was because the Divine Craftsman desired to make the disorder present in the Receptacle as good as possible, that he turned to the Forms, the eternal model, in order to generate the cosmos of Becoming. The Forms then, only functioned as a model, in terms of the *Timaeus* story, because the Divine Craftsman desired to transform the Disorder-Receptacle. In other words, regarding their capacity to *function as a model*, the Forms are entirely dependent (or derivative) upon the prior situation regarding the Divine Craftsman and the Receptacle.

But what of an ontological dependence? Certainly, to speak of the priority of the One and the Indefinite Dyad to the Forms, would not be to speak of a temporal priority. All are *eternal* in the *Timaeus*. The priority in question is a logical priority.

Here, it would seem, the *Timaeus* is silent regarding the nature, and possible logical generation, of the Forms. This of course should be no surprise, as Plato's avowed intent in the *Timaeus* cosmogony was only to provide an account concerning the cosmos of sense-experience. It was for this reason that his account was to be considered a 'likely story'. An account concerning the nature and generation of Being (i.e. the Forms, or the

⁵³⁷ Simplicius, *Commentaries in Physica* 151:6-11 = Aristotle, *frag.* 28, 'Alexander says that according to Plato the first principles of all things, and of the Ideas themselves, are the One and the indefinite dyad ...'

eternal model) is outside the scope of the *Timaeus*, and would not constitute a ‘likely story’, but rather a *true account*, as it would have stable unchanging Being as its subject matter.

Plato describes the functional role of the Receptacle in the *Timaeus* only in relation to the cosmos of sense-experience. In this regard, the *Timaeus* limits its discussion to how ‘the One and the indefinite dyad were the first principles of sensible things as well’, as Simplicius also affirms.⁵³⁸

We should not expect to find then, any indication of how the Forms are ontologically derivative of the Receptacle in the *Timaeus*. In fact, it would be more accurate to say that the Indefinite Dyad only functions *as a receptacle* in the context of the *Timaeus* story. With regard to how the Forms are derived from the One and the Indefinite Dyad, we should not necessarily expect Plato to describe the role of the Indefinite Dyad as a receptacle at all.

The way that Plato appears to have considered the ontological dependence of the Forms upon the One and the Indefinite Dyad, is also briefly suggested to us in the reports of the lecture *On the Good*. Alexander stated that it was by associating the Forms with numbers, that Plato was able to derive the Forms from the One and the Indefinite Dyad.⁵³⁹ This was achieved by the One *limiting* the indefinite (i.e. unlimited, infinite) Dyad. A *definite* plurality (or *arithmoi*) was then brought about, in that a *numerical dyad* (a definite plurality of two) was generated.

And since Forms or Ideas are prior to the things which according to him have their being in relation to them and derive their being from them (the existence of these he tried in several ways to establish), he said that the Forms are numbers. For if that

⁵³⁸ Simplicius, *Commentarius in Physica* 453.25-30 = Aristotle, *frag.* 28.

⁵³⁹ Dillon further notes that the testimony of Theophrastus, which would seem to indicate a distinction between the Forms and numbers for Plato, can in fact be harmonised with the Aristotelian tradition, which maintains that, for Plato, Forms are numbers. Dillon, *The Heirs of Plato*, p. 21, ‘Theophrastus, indeed, in his *Metaphysics* (6^b 11f.) seems to envisage a hierarchical arrangement when he speaks of Plato “making all other things dependent on the Forms, and these on numbers, and proceeding from numbers to first principles”. Here a distinction is actually made between forms and numbers, seeming to conflict with the testimony of Aristotle that for Plato Forms *were* numbers. The conflict may, however, be averted if we take the numbers here in question as none other than the Decad, the Forms being those secondary combinations dependent on the primary numbers comprising the Decad.’ See, Dillon, *The Heirs of Plato*, pp. 19-22, for a discussion on how, for Plato, the Decad may possibly function as the primary Form-numbers, from which all other Forms are generated.

which is one in kind is prior to the things that exist in relation to it, and nothing is prior to number, the Forms are numbers. ...

But when limited by the One, the indefinite dyad, he says, becomes the numerical dyad; for this kind of dyad is one in form. Again, the dyad is the first number... [or, 'For this Dyad was one Form, and the first of the Numbers.']*⁵⁴⁰

Sextus Empiricus likewise noted that,

Thus as the highest principles of all things there have emerged the primary One and the Indefinite Dyad; and from these, they say, spring both the numerical one and the numerical two, — the one from the primary One, and the two from the One and the Indefinite Dyad. For the two is twice the one, and when the two did not as yet exist among the numbers neither did the twice exist among them, but it was taken from the Indefinite Dyad, and in this way the numerical two sprang from it and the One. And in the same way the rest of the numbers were constructed from these, the One always limiting the Indefinite Dyad generating two and extending numbers to an infinite amount.⁵⁴¹

Identifying the Divine Craftsman with the One and the Good, and the Receptacle-Space/Disorder as the Indefinite Dyad, provides us with the first principles of the Platonic cosmogony, first principles that are *mathematical* in their inception.

The possible role of the One and the Indefinite Dyad within Plato's philosophy is, of course, a subject of much debate within contemporary scholarship. As the textual evidence does not arise from the Platonic dialogues themselves but rather must be ascertained from later reports concerning Plato's oral teaching, it is inevitable that reconstructions of the Platonic philosophy in this area are strongly contentious. The interpretation I have offered here should only be considered as tentative. It functions primarily as a suggestion as to how the written dialogues of Plato (the *Timaeus* in this instance) can be understood to comport with the later reports on Plato's unwritten oral doctrines concerning First Principles.⁵⁴²

⁵⁴⁰ Alexander, *Commentaries in Metaphysica* 55.20-56.35 = Aristotle, *frag.* 28.

⁵⁴¹ Sextus Empiricus, *Against the Mathematicians*, X 276 – 277. Quoted from, Kramer, *Plato and the Foundations of Metaphysics*, p. 211.

⁵⁴² On one side of the debate, scholars such as Cherniss tend to negate the Aristotelian, and other indirect traditions, regarding Plato's unwritten doctrines. The Tübingen school of Platonic interpretation, on the other hand, has radically emphasised the need to take into account Plato's oral teachings as providing the foundation for his written philosophy contained in the dialogues. On the debate see, Kramer, *Plato and the Foundations of Metaphysics*, pp. 3-74; On the Tübingen interpretation of Plato see, Kramer, *Plato and the Foundations of Metaphysics*; Szlezak, *Reading Plato*. I essentially follow the Tübingen school on the importance of the indirect tradition regarding First Principles in Plato. For a further discussion on the role of the One and the Indefinite Dyad in Plato, see, Dillon, *The Middle Platonists*, pp. 1-11; Dillon, *The Heirs of Plato*, pp. 16-29.

6.4.2 The Mathematical Proportions Between the Elements

Plato has two important uses for a geometric construction in relation to the elements, namely, that concerned with the relationship between the elements — the inter-elemental aspect, and that concerned with the construction of the various elements themselves — the intra-elemental aspect. The former aspect will be discussed in this section and the latter in the following section.

Plato describes the Divine Craftsman as having ordered the ratios between the elements according to a geometric progression.

Hence the god, when he began to put together the body of the universe, set about making it of fire and earth. But two things alone cannot be satisfactorily united without a third; for there must be some bond between them drawing them together. And of all bonds the best is that which makes itself and the terms it connects a unity in the fullest sense; and it is of the nature of a continued geometrical proportion to effect this most perfectly. For whenever, of three numbers, the middle one between any two that are either solids (cubes?) or squares is such that, as the first is to it, so is it to the last, and conversely as the last is to the middle, so is the middle to the first, then since the middle becomes first and last, and again the last and first become middle, in that way all will necessarily come to play the same part towards one another, and by so doing they will all make a unity.⁵⁴³

Plato proposes that the *geometric* proportion is the ‘most perfect’ to achieve a bond of unity between three terms. Theon of Smyrna (c. AD 70 – 135) provides the following example to illustrate this:

The geometric proportions that in which the mean term contains one extreme, such as the proportion 3, 6, 12.⁵⁴⁴

Here, we have ‘the first is to the middle’ so ‘the middle is to the last’ or $3:6 = 6:12$, and ‘as the last is to the middle’ so ‘the middle is to the first’ or $12:6 = 6:3$.

But Plato restricts further the type of geometric proportion to be obtained, namely, the numbers at the extreme must be either ‘solids (cubes) or squares’. Furthermore, the cosmos subsists in a three-dimensional form — it has length, breadth, and depth. For this reason, two means are required in order to unite together a solid.

Now if it had been required that the body of the universe should be a plane surface with no depth, a single mean would have been enough to connect its companions and

⁵⁴³ Plato, *Timaeus*, 31b – 32a. Cornford translation.

⁵⁴⁴ Theon of Smyrna, *Mathematics Useful for Understanding Plato*, II, 33.

itself; but in fact the world was to be solid in form, and solids are conjoined, not by one mean, but by any two. Accordingly the god set water and air between fire and earth, and made them, so far as was possible, proportional to one another, so that as fire is to air, so is air to water, and as air is to water, so is water to earth, and thus he bound together the frame of the world visible and tangible.⁵⁴⁵

What is needed then, is a series of *four* numbers that are in geometrical progression (e.g. 3:6:12:24).

This qualification must be met by only having cubes or squares at the extremes. Therefore, Theon's example of 3:6:12 (or 3:6:12:24) will not suffice, as none of 3, 12, or 24 are square or cubic numbers. A better example in this case would be 1:2:4:8. Indeed, later in the *Timaeus*, Plato mentions this particular progression and the geometric progression of 1:3:9:27 as together providing the two progressions that generate the harmony of the world soul.⁵⁴⁶

The two middle terms in the progression form two *means* between the extreme terms. It is most likely that Plato had in mind here something equivalent to the propositions, with their proofs, later expressed by Euclid:⁵⁴⁷

Proposition 11: Between two square numbers there is one mean proportional number, and the square has to the square the ratio duplicate of that which the side has to the side.

Proposition 12: Between two cube numbers there are two mean proportional numbers, and the cube has to the cube the ratio triplicate of that which the side has to the side.⁵⁴⁸

Nicomachus also, in his discussion of geometric progressions, mentioned,

The Platonic theorem, that the plane numbers are held together by one mean, the solids by two standing in proportion: for between two consecutive squares will be found only one mean preserving the geometrical proportion ... and between two consecutive *cubes* only two.⁵⁴⁹

⁵⁴⁵ Plato, *Timaeus*, 32a-b. Cornford translation.

⁵⁴⁶ Plato, *Timaeus*, 35b. Cornford translation. Plato states, 'And having made a unity of the three, again he divided this whole into as many parts as was fitting, each part being a blend of Sameness, Difference, and Existence. And he began the division in this way. First he took one portion (1) from the whole, and next a portion (2) double of this; the third (3) half as much again as the second, and three times the first; the fourth (4) double of the second; the fifth (9) three times the third; the sixth (8) eight times the first; and the seventh (27) twenty-seven times the first.' This is the combination of the progressions, 1,2,4,8 and 1,3,9,27.

⁵⁴⁷ Euclid (c. 325 – 265 BC), according to Proclus, arranged in order many of the theorems of Eudoxus and Theaetetus, both of whom were associates of Plato. In this regard, *Elements*, VIII. 11, 12, appears to preserve a tradition extending back at least to the time of Plato.

⁵⁴⁸ Euclid, *Elements*, VIII. 11, 12. Heath translation.

⁵⁴⁹ As cited by, Cornford, *Plato's Cosmology*, pp. 49-50.

If we analyse such a progression as Plato indicates, based on squares and cubes, we note the following:⁵⁵⁰

2 — root

4 — square 2^2

8 — cube 2^3

16 — square 4^2

32 — solid number — that is not also a square or cube (i.e. the product of three numbers)

64 — square 8^2 , and the cube 4^3

128 — solid number — that is not also a square or cube

256 — square 16^2

512 — cube 8^3

Any two squares, in sequential order, contain between them one mean. For example, the squares 4 and 16 contain the mean 8 between them. Any two cubes, in sequential order, in such a progression contain two means between them. For example, the cubes 8 and 64, contain the means of 16 and 32. This confirms Plato's (and Nicomachus') assertion that there exist two means between cubic extremes in a geometric progression.

Plato, then, must have here envisioned this type of geometric relationship. Of course, the actual numbers involved are unspecified for Plato. That is not what is important. What is important, however, is that the numbers involved are mathematically ordered based upon a geometric proportion encompassing cubes, for three-dimensional space, at its extremes.

The ratios, or proportions, most likely refer to the quantities of each of the elements in relation to one another, within the cosmos. This directly contrasts with Presocratic speculation on the number of the elements. Empedocles proposed that each of the

⁵⁵⁰ The following analysis is based on Cornford, *Plato's Cosmology*, p. 50.

elements were equal in number, and the Atomists (Democritus and Leucippus) postulated an unlimited numbers of elements.⁵⁵¹

For Plato, fire, the most heavenly element, which makes up the bulk of the heavens, would be the most numerous of the elements. Descending from this, Plato places air, then water, and then earth. If we express these ratios in a geometric proportion, bounded by cubes, we have:

$$(\text{Earth}) 1 : (\text{Water}) 2 : (\text{Air}) 4 : (\text{Fire}) 8$$

In this manner, we obtain the relationships indicated by Plato, 'as fire is to air, so is air to water [$8:4 = 4:2$], and as air is to water, so is water to earth [$4:2 = 2:1$]' . Air and water act as the non-cubic means, between the cubic extremes of earth and fire, i.e. 2 and 4 act as the non-cubic means between 1 and 8.

Through this geometric inter-elemental relationship, Plato explains that the cosmos was brought 'into unity with itself'.⁵⁵²

6.4.3 The Geometric Basis of the Elements

Finally, we arrive at the very generation of the elements themselves. We have already seen that mathematics functions as the basis upon which the Divine Craftsman takes hold of the original Disorder, and that upon the basis of mathematics the elements are related to one another.

Here we come to the heart of the matter in which mathematics, and in particular geometry, forms the very structure out of which the elements are generated. The elements themselves are not atomic, or indivisible, as was suggested by the Atomists.⁵⁵³ Rather the elements themselves are constructed out of more basic components — which consist of

⁵⁵¹ Empedocles, 31 B 17 DK, 'All these (elements) are equal and of the same age in their creation'; Democritus, 68 A 37, 'Democritus believes that the nature of the eternal things is small beings unlimited in multitude'; Leucippus, 67 A 14 DK, 'These men [Leucippus, Democritus, and Epicurus] said that the principles are unlimited in multitude...' As noted by Cornford, *Plato's Cosmology*, p. 51.

⁵⁵² Plato, *Timaeus*, 32c. Cornford translation.

⁵⁵³ Leucippus, 67 A 13 DK, 'Those who abandoned division to infinity on the grounds that we cannot divide to infinity and as a result cannot guarantee that the division cannot end, declared that bodies are composed of indivisible things and are divided into indivisibles. Except that Leucippus and Democritus hold that the cause of the primary bodies' indivisibility is not only their inability to be affected but also their minute size and lack of parts.'

regular geometrical figures enlivened by soul. It is through mathematics, and in particular these fundamental regular geometric figures, that Being is imaged into the Receptacle-Space.

Plato analyses the four elements into their constituent shapes. Any shape is bounded by a surface. Any rectilinear surface can be understood as composed of an arrangement of triangles. Upon this basis the five regular polyhedra may be constructed. For Plato, four polyhedra correspond to the elements, and the fifth to the cosmos as a whole.⁵⁵⁴

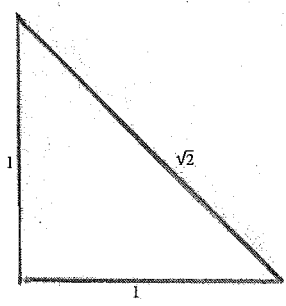
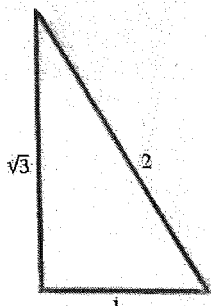
In the first place, then, it is of course obvious to anyone that fire, earth, water, and air are bodies; and all body has depth. Depth, moreover, must be bounded by surface; and every surface that is rectilinear is composed of triangles. Now all triangles are derived from two, each having one right angle and the other angles acute. Of these triangles, one has on either side the half of a right angle, the division of which is determined by equal sides (the right-angled isosceles); the other has unequal parts of a right angle allotted to unequal sides (the right-angled scalene). This we assume as the first beginning of fire and of the other bodies ...

Now, of the two triangles, the isosceles is of one type only; the scalene, of an endless number. Of this unlimited multitude we must choose the best, if we are to make a beginning on our own principles. ... For ourselves, however, we postulate as the best of these many triangles one kind, passing over all the rest; namely, a pair of which compose the equilateral triangle. ... the one isosceles (the half-square), the other having the greater side triple in square of the lesser (the half-equilateral).⁵⁵⁵

Plato proposes two specific triangles as being the *best* out of which to construct the elements. Diagrammatically, they are as follows:

⁵⁵⁴ The philosopher/mathematician Theaetetus (c. 417-369 BC), a colleague of Plato, is attributed by the *Suda Lexicon* to have been the first to construct the five regular solids. See also, Cornford, *Plato's Cosmology*, p. 210. Euclid, *Elements*, XIII, 13-17, also sets out the construction of the five regular polyhedra. It is likely that Euclid based his work upon a construction dating back to Theaetetus.

⁵⁵⁵ Plato, *Timaeus*, 53c-54b. Cornford translation.

The Half-Square	The Half-Equilateral
	

The half-square is a ‘right angled’ isosceles triangle, comprised of a ‘division of which is determined by equal sides’, namely, a right-angled triangle in which the opposite and adjacent sides are equal in length. This forms a $1:1:\sqrt{2}$ ratio between the sides.

The half-equilateral is a ‘right angled’ scalene triangle (‘unequal parts ... allotted to unequal sides’). It is constructed from ‘the equilateral triangle’, in which ‘the greater side triple in square of the lesser’. If we divide a $2:2:2$ equilateral triangle into two right angled triangles, our new triangle will have sides in which the adjacent is 1, the hypotenuse 2, and therefore the opposite is $\sqrt{3}$, or ‘triple in square of the lesser’ — i.e. (*opposite side squared*) $\sqrt{3}^2 = (\text{three times the adjacent side}) 3 \times 1$. So we obtain a $1:\sqrt{3}:2$ triangle.

From these two triangles Plato generates the four regular polyhedra that comprise the elements. The half-square is unique in that it alone is used to generate the cube (hexahedron). The half-equilateral is used to generate the pyramid (i.e. tetrahedron), octahedron, and icosahedron. The dodecahedron, however, cannot be constructed with either of these two basic triangles, and instead requires an isosceles triangle with each of its base angles double the top angle.⁵⁵⁶ Plato does not construct this figure in the *Timaeus*. The dodecahedron is assigned to the figure of the cosmos itself.

As the same half-equilateral triangle constructs the tetrahedron, octahedron, and icosahedron, then the elements that correspond to these three figures will be able to

⁵⁵⁶ See, Heath, *Euclid's Elements*, ii, p. 98.

transform into each other. The element that corresponds to the cube will not be transformable however.

We must now be more precise upon a point that was not clearly enough stated earlier. It appeared as though all the four kinds could pass through one another into one another; but this is delusive; for the triangles we selected give rise to four types, and whereas three are constructed out of the triangle with unequal sides, the fourth alone is constructed out of the isosceles. Hence it is not possible for all of them to pass into one another by resolution ... But three of them can do this; for these are composed of one triangle...⁵⁵⁷

Later, Plato relates the regular polyhedra to the four elements. Earth is assigned to the cube. This is due to its immobility, and its plasticity, which arise from its stable equal-sided base. Fire is assigned to the tetrahedron (i.e. pyramid) as it is smallest, most mobile, and has the sharpest angles. Of the *mean* elements, water is assigned to the icosahedron, as it is the less mobile, larger, and the less sharp of the remaining two figures; and air is assigned to the octahedron, given its intermediary function.

To earth let us assign the cubical figure; for of the four kinds earth is the most immobile and the most plastic of bodies. The figure whose bases are most stable must best answer that description; and as a base, if we take the triangles we assumed at the outset, the face of the triangle with equal sides is by nature more stable... and of the remainder the least mobile to water, the most mobile to fire, and the intermediate figure to air. Again, we shall assign the smallest body to fire, the largest to water, and the intermediate to air; and again the body with the sharpest angles to fire, the next to air, and the third to water. Now, taking all these figures, the one with the fewest faces (pyramid) must be the most mobile, since it has the sharpest cutting edges and the sharpest points in every direction, and moreover the lightest, as being composed of the smallest number of similar parts; the second (octahedron) must stand second in these respects, the third (icosahedron), third. Hence, in accordance with genuine reasoning as well as probability, among the solid figures we have constructed, we may take the pyramid as the element or seed of fire; the second in order of generation (octahedron) as that of air; the third (icosahedron) as that of water.⁵⁵⁸

Plato inserts a further step into the construction of the polyhedra. Rather than immediately constructing them from the basic two types of triangles, he instead uses the triangles to form larger plane figures, and then employs these to construct the regular solids.

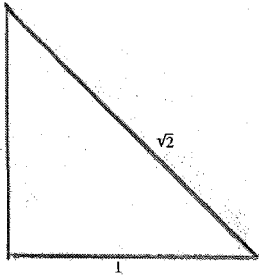
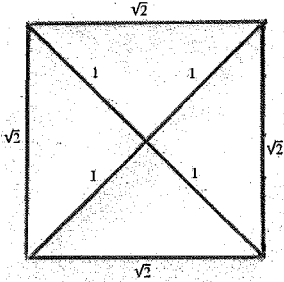
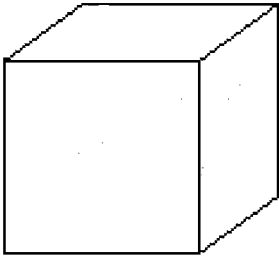
⁵⁵⁷ Plato, *Timaeus*, 54b-c. Cornford translation.

⁵⁵⁸ Plato, *Timaeus*, 55e – 56b. Cornford translation.

In the unique case of the cube, *four* of the half-square triangles are combined as a new square, which then generates the six faces of the cube (i.e. hexahedron).

But the isosceles triangle went on to generate the fourth body, being put together in sets of four, with their right angles meeting at the centre, thus forming a single equilateral quadrangle. Six such quadrangles, joined together, produced eight solid angles, each composed by a set of three plane right angles. The shape of the resulting body was cubical, having six quadrangular equilateral planes as its faces.⁵⁵⁹

So we have:

Basic Half-Square Triangle	Newly Constructed Plane Quadrangle	Regular Solid Constructed
		Cube — Six Quadrangular Faces
		

⁵⁵⁹ Plato, *Timaeus*, 55b-c. Cornford translation.

The remaining three regular polyhedra are constructed from a larger equilateral triangle, which consists of six of the basic half-equilateral triangles. This newly constructed equilateral triangle is employed for the four faces of the tetrahedron (i.e. pyramid), the eight faces of the octahedron, and the twenty faces of the icosahedron.

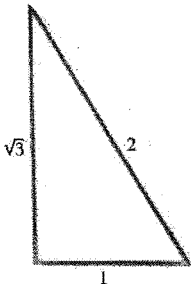
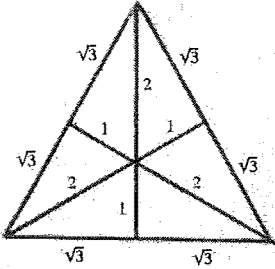
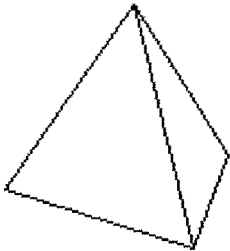
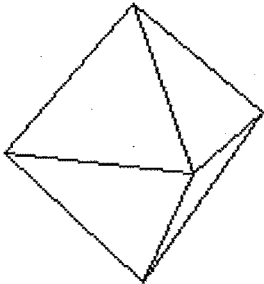
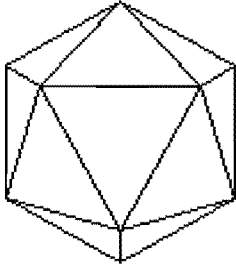
First will come the construction of the simplest and smallest figure (the pyramid). Its element is the triangle whose hypotenuse is double of the shorter side in length. If a pair of such triangles are put together by the diagonal, and this is done three times, the diagonals and the shorter sides resting on the same point as a centre, in this way a single equilateral triangle is formed of triangles six in number.

If four equilateral triangles are put together, their plane angles meeting in groups of three make a single solid angle, namely the one (180°) that comes next after the most obtuse of plane angles. When four such angles are produced, the simplest solid figure is formed, whose property is to divide the whole circumference into equal and similar parts.

A second body (the octahedron) is composed of the same (elementary) triangles when they are combined in a set of eight equilateral triangles, and yield a solid angle formed by four plane angles. With the production of six such solid angles the second body is complete.

The third body (the icosahedron) is composed of one hundred and twenty of the elementary triangles fitted together, and of twelve solid angles, each contained by five equilateral triangular planes; and it has twenty faces which are equilateral triangles.⁵⁶⁰

⁵⁶⁰ Plato, *Timaeus*, 54d – 55b. Cornford translation.

Basic Half-Equilateral Triangle	Newly Constructed Plane Equilateral Triangle	Regular Solid Constructed
		Tetrahedron — Four Equilateral Triangular Faces
		
		Octahedron — Eight Equilateral Triangular Faces
		
		Icosahedron — Twenty Equilateral Triangular Faces
		

Further to this, however, Plato states that the triangles that comprise the sides of the four regular polyhedra are not all of one standard size.

In this way, then, the formation of all the uncompounded and primary bodies is accounted for. The reason why there are several varieties within their kinds lies in the construction of each of the two elements: the construction in each case originally produced its triangle not of one size only, but some smaller, some larger, the number of these differences being the same as that of the varieties in the kinds. Hence, when they are mixed with themselves or with one another, there is an endless diversity, which must be studied by one who is to put forward a probable account of Nature.⁵⁶¹

The 'varieties in the kinds' that Plato here refers to, he further elaborates on in his discussion regarding the elements later in the *Timaeus*. There Plato identifies three kinds of fire,⁵⁶² along with two specific kinds of air, but he indicates that there are many more varieties.⁵⁶³ He also specifies two kinds of water,⁵⁶⁴ and mentions various kinds of earth.⁵⁶⁵

This adds a further dimension of complexity to the account. If these various basic triangles were of incommensurable sizes, or types of size, then we would be faced with the problem that there could be no breaking and rejoining between incommensurable triangles. One type of size could not be transformed into another. *Prima facie*, this appears an unreasonable assumption concerning the relationship between the various kinds of basic triangles, as it does not comport with the way in which Plato describes the work of the Divine Craftsman. He states,

Now we must think of all these bodies [i.e. elements] as so small that a single body of any one of these kinds is invisible to us because of its smallness; though when a number are aggregated the masses of them can be seen. And with regard to their numbers, their motions, and their powers in general, we must suppose that the god adjusted them in due proportion, when he had brought them in every detail to the most exact perfection permitted by Necessity willingly complying with persuasion.⁵⁶⁶

⁵⁶¹ Plato, *Timaeus*, 57c-d. Cornford translation.

⁵⁶² Plato, *Timaeus*, 58c-d, '... there are diverse kinds of fire. There are, for example, first, flame, secondly, those emanations of flame which do not burn but only give light to the eyes, and thirdly, the remains of fire, which are seen in red-hot embers after the flame as been extinguished.'

⁵⁶³ Plato, *Timaeus*, 58d, 'There are similar differences in the air, of which the brightest part is called the aether, and the most turbid sort mist and darkness, and there are various other nameless kinds which arise from the inequality of the triangles.'

⁵⁶⁴ Plato, *Timaeus*, 58c-d, 'Water, again, admits in the first place of a division into two kinds, the one liquid and the other fusile.'

⁵⁶⁵ Plato, *Timaeus*, 60c-d, 'As to the kinds of earth, that which is filtered through water passes into stone in the following manner. ... The fairer sort is that which is made up of equal and similar parts and is transparent...' etc.

⁵⁶⁶ Plato, *Timaeus*, 56b-c. Cornford translation.

A 'most exact perfection', and more especially a most exact *mathematical* perfection, suggests that the various kinds of basic triangles be commensurable with each other.

A solution to this interpretive question has been offered by F.M. Cornford.⁵⁶⁷ He proposes that the larger basic triangles be composed out of definite multiples of a smallest type of triangle. Thus, from one smallest ultimate half-square triangle all the various sized square sides of the hexahedron (i.e. cube) may be composed. Likewise, from one smallest ultimate half-equilateral triangle all the various sized equilateral sides of the tetrahedron (i.e. pyramid), octahedron, and icosahedron can be generated.

The half-square triangle may easily generate further half-square triangles by a process of duplication along the axis of either the adjacent or opposite sides:

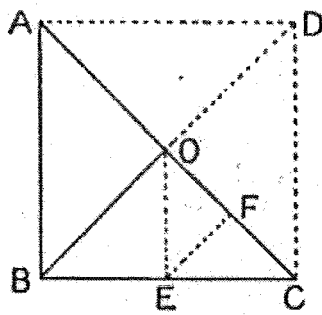


Figure 8

For example, the larger half-square triangle CEO is generated by duplicating CEF along the axis EF.

Similarly, the half-equilateral generates further larger half-equilaterals by a process of triplication along the axis of the hypotenuse side of the original, and opposite side of the second generated triangle:

⁵⁶⁷ Cornford, *Plato's Cosmology*, p. 233-239.

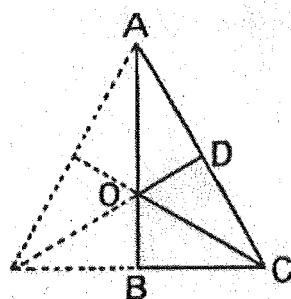


Figure 9

For example, the larger half-equilateral CBA is generated by triplicating CBO along the axis of CO and then DO.

In this manner, any given larger regular polyhedron could be broken up and refashioned into smaller polyhedra. The actual limit to the size of triangles would be determined by Plato's injunction that the individual regular polyhedra so formed remain invisible to the naked eye. Cornford provides examples of how the first few triangles so generated would appear, both for the half-square, and the half-equilateral:

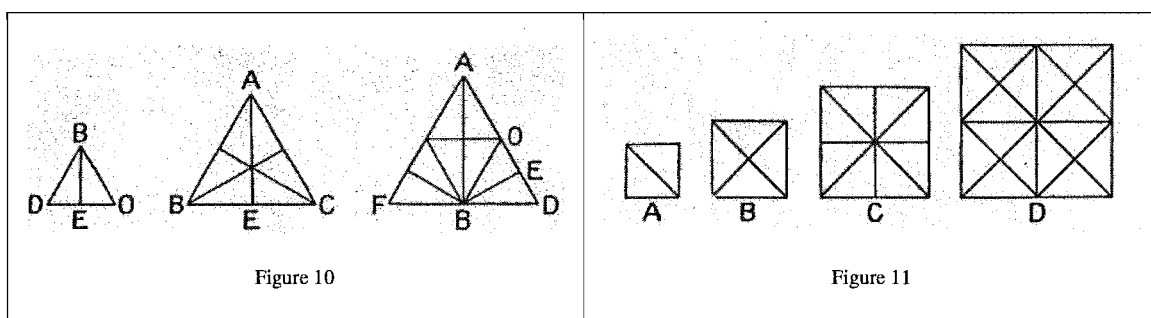


Figure 10

Figure 11

The only difficulty with this interpretation, offered by Cornford, would be to account for *why* Plato describes the polyhedra, in *Timaeus* 54c – 55c, as being composed from only four half-squares (in the case of the cube) and six half-equilaterals (in the case of the tetrahedron, octahedron, and icosahedron). Why does Plato there suggest that the regular polyhedra are generated from this particular number of smallest triangles, if later he wishes to construct further polyhedra from larger triangles composed of more numerous smallest triangles? In response to this, Cornford suggests,

Here we encounter one of the points that we noted as never having been satisfactorily explained. Why use 4 half-squares to construct a square when 2 would suffice? Why 6 half-equilaterals, when 2 would suffice...? Evidently he [*i.e.* Plato]

was aware that there were at least two ways of composing an equilateral out of this element. The seemingly arbitrary procedure can be explained by supposing that, in the earlier construction of the four solids, Plato intended to describe solids of an intermediate size ... not the smallest possible grade... He deliberately used more elementary triangles than would have been required, if he had only one grade of solid in mind. ... He chose to describe solids of a larger grade because he wanted to suggest that there are in fact several grades, and that when these larger solids are broken down into elements, those elements can be recombined in several ways. Thus the 6 scalenes in the equilateral face of a pyramid can recombine, in pairs, to make three equilateral faces for pyramids or octahedra or icosahedra of the lower grade. ... An advantage of this scheme is that it would make it possible for there to be more — perhaps many more — varieties of (say) water than there are of fire; and yet transformation could occur between them all.⁵⁶⁸

If we follow Cornford's schema then, we may account for the complete commensurability between the various sized regular polyhedra, such that any given polyhedron can be mathematically reconstructed to fashion a different polyhedron. The only restriction being on the incommensurability between the element of earth (cube), and the elements of fire, air, water (tetrahedron, octahedron, icosahedron).

Plato further correlates the geometrical properties of the regular polyhedra to the properties of the elements. The reason that fire is light (soars upward), and that it tears things apart by burning, is due to the sharp (tearing) angles it possesses, and the relative smallness of its pyramidal construction. Similarly the sharper elements are able to break up the blunter ones, such as air breaking up water.⁵⁶⁹

Regarding the role of the dodecahedron, Plato states,

There still remained one construction, the fifth; and the god used it for the whole, making a pattern of animal figures thereon.⁵⁷⁰

Plato may have envisioned here a symbolic analogy between the twelve faces of the dodecahedron, and the twelve constellations of the zodiac, the 'patterns of animals' written in the heavens. In the *Phaedo*, he also adopted the image of the dodecahedron, but in this instance to describe the earth.⁵⁷¹

⁵⁶⁸ Cornford, *Plato's Cosmology*, pp. 234-235.

⁵⁶⁹ See, Plato, *Timaeus*, 56c – 57c.

⁵⁷⁰ Plato, *Timaeus*, 55c. Cornford translation.

⁵⁷¹ Plato, *Phaedo*, 110b, 'Well, my dear boy, said Socrates, the real earth, viewed from above, is supposed to look like one of these balls made of twelve pieces of skin, variegated and marked out in different colours...'

Given the traditional Greek understanding of the four elements, Plato fashioned a geometric understanding of these by relating the five regular solids with these four elements plus the cosmos itself. This inspired correlation, so far as we are able to discern, was completely original with Plato.⁵⁷²

6.5 The Mathematical Cosmos

By providing a geometric basis for the generation of the elements themselves, Plato not only indicates that the *inter*-elemental aspect of the cosmos is mathematically proportioned, but also that the *intra*-elemental aspect is mathematically constructed.

These geometric figures function as the way, or the medium, in which the Divine Craftsman orders the cosmos. Being is projected into the Receptacle-Space, through the means of geometrical configurations. The gap between Being and Becoming is therefore bridged in this manner. Significantly, this correlates with the way Plato bridges the gap between *doxa* (opinion — with Becoming as its object), and *epistêmê* (knowledge — with Being as its object), through the study of mathematics, as I shall argue in Chapter Seven.

⁵⁷² Cornford, *Plato's Cosmology*, p. 220.

Part Two: Plato as Orphic Mathematician

Chapter Seven:

Mathematical Katharsis

Let no man ignorant of Geometry enter here

— *Inscription above the door of Plato's academy,*
as reported by John Tzetzes (12th c. AD), *Book of Histories*, viii, 972

In this chapter, I examine the microcosmic concomitant of Chapter Six, namely, how Plato incorporates, and transforms, the Orphic mysteries with regard to the soul. At the macrocosmic level, mathematics bridges the gap for the cosmos. It enables Being to be imaged into Becoming, and so bring it into a semblance of order. Likewise, at the microcosmic level mathematics bridges the epistemological gap for individual souls, between Being and Becoming.

The practice of mathematics, for Plato, must be understood in light of the Orphic philosopher's religious quest to obtain *katharsis* (purification). This amounts to the epistemological need to purge the soul of all reliance upon sense-experience (Becoming), and to unify the rational soul with the world of Being, the unchanging Reality behind experience. Mathematics functions as the medium that bridges this epistemological gap, and directs the soul from Becoming to Being. Mathematics is pursued as a *theoretical* enterprise by the rational soul.

I analyse key texts in the *Phaedo*, *Symposium*, and *Republic*, in order to substantiate this proposal.

7.1 Plato's Mathematics as *Katharsis*

In Chapter Six, I argued that mathematics is the *ontological* medium through which the world of Being is imaged, or reflected, into the world of Becoming. In this chapter, I wish to argue the *epistemological* concomitant of this, namely, that mathematics functions as a medium, guiding us from the opinion (*doxa*) of our senses, to the knowledge (*epistêmê*) of our intellect.

At the macrocosmic level, mathematics bridges the gap for the cosmos, enabling Being to be imaged into Becoming, and so bring Becoming into a semblance of order. At the microcosmic level, mathematics bridges the epistemological gap for individual souls, between the opinion of Becoming and the knowledge of Being.

To achieve this mathematical mediation, Plato philosophically transforms the Orphic practice of *katharsis* (purification) which the Orphic initiate enters into prior to receiving the mysteries of the cult. Plato applies this Orphic religiosity to the newly arisen concept of the *rational* soul with its accompanying *way of philosophy*.

I propose that for Plato, his transformation of this Orphic myth and praxis resulted in the following. Mathematics helps the rational soul cleanse itself from its sullyng attachment to the body. Thus mathematics can help lead the soul away from its misguided focus on *Becoming* towards the recognition that Becoming is not ultimately real. Mathematics can instead draw the soul to gaze upon *Being*, which is comprehensible by reason only, and is the true reality behind the sensual experience of Becoming. Once initiated into mathematics, the soul has potentially begun a lifetime of further purification. In this way it is directed towards Being, and finally towards a revelation of the Good, which is itself beyond Being. Mathematics then, prepares or initiates the soul into the life of philosophy.

Mathematics is neither purely sensual, nor the highest expression of reason. Rather it forms the bridge between the two. It connects with the concrete, and yet at the same time transcends the concrete. It takes its first step by being grounded on earth, yet ends its course by reaching up into heaven.

7.2 The Philosopher's Preparation for Death: *Phaedo*

Dramatically, the *Phaedo* presents Plato's account to us of the final hours of Socrates' life, prior to his execution at the hands of the Athenian polis. With Socrates facing immanent death, the conversation dramatically revolves around the question of the afterlife.⁵⁷³

This dialogue most emphatically directs our attention to the place of *katharsis*, or purification, in the life of the philosopher. Here, however, Plato does not deal explicitly with the role of mathematics in this regard. The fuller picture comes to us in such dialogues as the *Symposium*⁵⁷⁴ and *Republic*⁵⁷⁵. Yet it is the picture first presented in the *Phaedo*, of the life of philosophy, upon which Plato further elaborates in these other dialogues.

Plato furnishes us with the proposal that,

...it seems to me natural that a man who has really devoted his life to philosophy should be cheerful in the face of death, and confident of finding the greatest blessing in the next world when his life is finished. ... those who really apply themselves in the right way to philosophy are directly and of their own accord preparing themselves for dying and death.⁵⁷⁶

For the philosopher then, life should be lived as a preparation for death. Death is the friend to be embraced, not the enemy to be feared.

In defence of this, Plato relies upon a distinctly dualistic anthropology, and individual eschatology, both derived from Orphism, as discussed in Chapters Three and Four.

Death is merely the release of the soul (*psuchê*) from the body (*sôma*).⁵⁷⁷ Philosophers should not concern themselves with bodily (*sômatic*) pleasures, such as food, drink, sex, clothing, shoes, and ornaments. In fact they should despise them, and concern themselves instead with the activities of the soul. Thus it can be said in all

⁵⁷³ Plato, *Phaedo*, 61d-e, 'I suppose that for one who is soon to leave this world there is no more suitable occupation than inquiring into our views about the future life, and trying to imagine what it is like.'

⁵⁷⁴ Plato, *Symposium*, 198a – 212c, to be discussed in section 7.3.

⁵⁷⁵ Plato, *Republic*, 507b – 540b, to be discussed in section 7.4-6.

⁵⁷⁶ Plato, *Phaedo*, 63e – 64a.

⁵⁷⁷ Plato, *Phaedo*, 64c, 'Is it simply the release of the soul from the body? Is death nothing more or less than this ... No, just that.'

seriousness, but with a kind of inverted meaning, that ‘the philosopher does not deserve to live.’⁵⁷⁸

That the body hinders our ability to achieve knowledge is very important for Plato. The bodily senses never reveal to us things with accuracy. They lead the soul astray. The soul must ignore the body, in its search for Reality. The philosopher alone achieves this ahead of any others.⁵⁷⁹

In regarding as a dichotomy the separation between sense experience, which belongs to the body, and intellection, which belongs to the soul, Plato in effect asserts that the abstract theoretical way of philosophy has primacy over the concrete oral-mythical way of life. Reality is to be discovered, neither in the world of our senses, nor in the world of the traditional Homeric poems, as discussed in Chapter Two. Our cognisance of things *in themselves*⁵⁸⁰ entirely consists in an act of the intellect, theoretically oriented and unhindered by the senses.

... the unaided intellect, without taking account of any sense of sight in his thinking, or dragging any other sense into his reckoning — the man who pursues the truth by applying his pure and unadulterated thought to the pure and unadulterated object, cutting himself off as much as possible from his eyes and ears and virtually all the rest of his body, as an impediment which by its presence prevents the soul from attaining to truth and clear thinking.⁵⁸¹

Once the objects of abstract theoretical cognition are hypostatized as the *real* things in themselves behind our sense-experience, then it is our ability to cognise with a literal-minded orientation to theoretical truth that becomes the basis of true knowledge (*epistêmê*), as opposed to the mere opinion (*doxa*) of our senses. This abstract cognising faculty is itself hypostatized as the *rational* soul, the real self.

Here we have the philosophically transformed anthropology of the Orphics. Man is the dual being, originally fashioned from the remains of the Titans who had consumed Dionysus. He is therefore a Divine (Dionysian) soul entombed in a Titanic corrupt body.

⁵⁷⁸ Plato, *Phaedo*, 64d – 65a.

⁵⁷⁹ Plato, *Phaedo*, 65a-d.

⁵⁸⁰ By the phrase ‘things in themselves’ I mean, what Plato states in Greek as, ‘*auto x*’, whether *x* be *to kalon* (the beauty), or *to hosion* (the holy), etc. So the search is always for ‘the beauty (or beautiful) itself’, or ‘the holy itself’, etc. My use of the phrase ‘things in themselves’ should in no way be confused with the much later Kantian idea of the *Ding an sich*.

⁵⁸¹ Plato, *Phaedo*, 66a.

But Plato goes beyond this explanation. The soul is Divine, not so much in that it contains a spark of the heavenly Dionysus, but in that it is immortal, rational, and the faculty that contemplates the Divine *things in themselves* — the Forms. The body is a source of evil, not so much in that it contains the nature of the evil Titans, but in that it is mutable, changing, and Becoming. To this extent it is a privation of the Good. The soul connects with the world of Being, the Forms, whereas the body connects only with the world of Becoming, the sensibles.

Plato concludes from this that there exists a sense in which ‘the wisdom which we desire and upon which we profess to have set our hearts will be attainable only when we are dead, and not in our lifetime’.⁵⁸² Nevertheless, ‘we shall continue closest to knowledge if we avoid as much as we can all contact and association with the body’.⁵⁸³

Coupled with this is a soteriological aspect to the life of philosophy. Plato states,

In this way, by keeping ourselves uncontaminated by the follies of the body, we shall probably reach the company of others like ourselves and gain direct knowledge of all that is pure and uncontaminated — that is, presumably, of truth. For one who is not pure himself to attain to the realm of purity would no doubt be a breach of universal justice.⁵⁸⁴

Here Plato reveals the theme of *purification*. The last phrase in the above quotation would be a maxim understood and upheld by his Greek contemporaries in the context of the Orphic mystery religions. The eschatological hope, the *salvation* desired by the initiate of the Orphic mysteries, was to be received into the realm of the blessed, or assimilated back into the Divine. Plato philosophically restates this as a hope that the follower of philosophy will at last obtain the beatific vision of Reality, of Being.

... if this is true, there is good reason for anyone who reaches the end of this journey which lies before me to hope that there, if anywhere, he will attain the object to which all our efforts have been directed during my past life. So this journey which is now ordained for me carries a happy prospect for any other man who believes that his mind has been prepared by purification.⁵⁸⁵

⁵⁸² Plato, *Phaedo*, 66e.

⁵⁸³ Plato, *Phaedo*, 67a.

⁵⁸⁴ Plato, *Phaedo*, 67a-b.

⁵⁸⁵ Plato, *Phaedo*, 67b-c.

Purification or *katharsis*, then, functions as the means of salvation. It is the way to realise the eschatological hope of Platonism. Notably, Orphism expressed exactly the same theme.

For the Orphics, eschatology grew right out of anthropology, as discussed in Chapters Three and Four. Anthropologically, man was a dual being, a Titanic body, and a Divine (Dionysian) soul. Eschatologically, as man was tied to the evil (Titanic) earth, his destiny was to face a series of reincarnations back into an earthly body. But he could break free from this cycle, and find final rest in the fields of Elysium — returning back to the Divine. The way to achieve this was to liberate the Divine soul from the evil Titanic nature of the body. One had to enter into the Orphic mysteries, and partake of the ritual purification of cleansings and washings, perhaps also accompanied by dietary restrictions. The soul that had lived a pious life, after three reincarnations, would be finally set free to Elysium, back to the Divine.⁵⁸⁶

This is exactly the mythology upon which Plato bases his own myths in the *Phaedo*, as well as the *Republic* and *Phaedrus*. So much so, that Plato uses the very details of a *three incarnation* period.

Now in all these incarnations he who lives righteously has a better lot for his portion, and he who lives unrighteously a worse. For a soul does not return to the place whence she came for ten thousand years, since in no lesser time can she regain her wings, save only his soul who has sought after wisdom unfeignedly, or has conjoined his passion for a loved one with that seeking. Such a soul, if with three revolutions of a thousand years she has thrice chosen this philosophical life, regains thereby her wings, and speeds away after three thousand years...⁵⁸⁷

This theme of *katharsis* (purification) also functions centrally within the Platonic eschatology. Yet once again, as with the Orphic anthropology, Plato transforms this into a *philosophical katharsis*.

⁵⁸⁶ See, Guthrie, *Orpheus*, p. 184. Guthrie suggests that it should perhaps be understood that the soul is incarnated every third time as a man, and that after three such reincarnations as a man (i.e. 9 years) that the soul could be liberated. For primary sources consider, Pindar, *Olympian Ode*, ii, 53, 'And all they that, for three lives in either world, have been steadfast to keep their soul from all wrong-doing, travel by the highway of Zeus to the Tower of Cronos, where the Ocean airs breathe about the Islands of the Blest.' Also, Pindar, *Dirges*, frag. 133, 'But as for those from whom Persephone shall exact the penalty for the primal woe, in the ninth year she gives up again their souls to the sunlight in the world above.' Both quotations from, Cornford, *Greek Religious Thought*, pp. 62-64.

⁵⁸⁷ Plato, *Phaedrus*, 248e – 249a.

Katharsis in the Orphic mysteries was that process by which the initiate was cleansed, prior to entering into the life of the cult. Martin summarises,

Katharsis was the preliminary ritual cleansing or purification of the initiate. This cleansing made the initiate worthy of the systasis, the collection or assembling of the initiates or mystae for the ritual dance or procession.⁵⁸⁸

For Plato, just as for the Orphic mysteries, one had to be initiated and purified from contamination. The soteriological goal for the mysteries was post-mortem bliss in the Elysian fields, or to be reunified with the Divine. For Plato, it was to have one's rational faculty (the soul) reunified with the newly conceived *Divine Reason*, to forever contemplate Being, things in themselves, or the world of Forms.

This represents the goal of the philosopher, and of the life of philosophy. Along with the Orphic mysteries, for Plato, *katharsis* (purification) consists in emancipating the soul from the body.

And purification [κάθαρσις — *katharsis*], as we saw some time ago in our discussion, consists in separating the soul as much as possible from the body, and accustoming it to withdraw from all contact with the body and concentrate itself by itself, and to have its dwelling, so far as it can, both now and in the future, alone by itself, freed from the shackles of the body. ... And the desire to free the soul is found chiefly, or rather only, in the true philosopher. In fact the philosopher's occupation consists precisely in the freeing and separation of soul from body.⁵⁸⁹

Purification, for Plato, operates as a moral ideal. The virtuous life is the life lived by someone initiated into the way of philosophy. Wisdom itself consists in a sort of purification.⁵⁹⁰

At the end of his defence of philosophy as the *way of death* in the *Phaedo*, Plato has Socrates make specific mention of the parallel he has drawn with the Orphic mysteries,

Perhaps these people who direct the religious initiations are not so far from the mark, and all the time there has been an allegorical meaning beneath their doctrine that he who enters the next world uninitiated and unenlightened shall lie in the mire, but he who arrives there purified and enlightened shall dwell among gods. You know how the initiation practitioners say, 'Many bear the emblems, but the devotees are few'? Well, in my opinion these devotees are simply those who have lived the philosophical life in the right way...⁵⁹¹

⁵⁸⁸ Martin, Luther H. *Hellenistic Religions*, p. 62.

⁵⁸⁹ Plato, *Phaedo*, 67c-d.

⁵⁹⁰ Plato, *Phaedo*, 69b-c.

⁵⁹¹ Plato, *Phaedo*, 69c-d.

Plato, later in the dialogue, refers again to the life of the philosopher as preparing him to contemplate the world of Being, or the Forms, after being separated from the body. The soul that is pure and uncontaminated will break the cycle of reincarnation.⁵⁹² Souls that have given heed to the body and its pleasures will find themselves dragged back down to a body again at death, or hover as a shade haunting tombs.⁵⁹³ Only those souls that are completely pure can be emancipated. And the only way to be purified and liberated is through philosophy. Finally, Plato concludes the philosophical discussion in the *Phaedo* with a myth of the afterlife.⁵⁹⁴

The way that philosophy achieves this purifying act, is only briefly and summarily mentioned in the *Phaedo*. A fuller account, and one in which the role of mathematics is expounded, Plato develops in the *Republic* and *Symposium*. But here, in the *Phaedo*, he lays the foundations.

Every seeker after wisdom knows that up to the time when philosophy takes it over his soul is a helpless prisoner, chained hand and foot in the body⁵⁹⁵, compelled to view reality not directly but only through its prison bars, and wallowing in utter ignorance. And philosophy can see that the imprisonment is ingeniously effected by the prisoner's own active desire, which makes him first accessory to his own confinement. Well, philosophy takes over the soul in this condition and by gentle persuasion tries to set it free. She points out that observation by means of the eyes and ears and all the other senses is entirely deceptive, and she urges the soul to refrain from using them unless it is necessary to do so, and encourages it to collect and concentrate itself by itself, trusting nothing but its own independent judgement upon objects considered in themselves, and attributing no truth to anything which it views indirectly as being subject to variation, because such objects are sensible and visible but what the soul itself sees is intelligible and invisible.⁵⁹⁶

Here we discover a particularly perspicuous account of the fundamental difference between the literate-philosophical and the oral-mythical ways of life. The 'objects considered in themselves' are the objects of abstract cognition, only possible within a literate-philosophical setting. No truth or trustworthiness can be placed in concrete *actors making actions*, as they are prone to *variation* or Becoming. The hypostatized rational soul, the real self, must in fact utterly reject the older concrete oral-mythical (and

⁵⁹² Plato, *Phaedo*, 80e.

⁵⁹³ Plato, *Phaedo*, 81b-d.

⁵⁹⁴ Plato, *Phaedo*, 107d – 114d.

⁵⁹⁵ The imagery of being *chained* is also used in the allegory of the *Cave*, from the *Republic* 514a – 519b, which deals with a similar theme. See the discussion on the *Cave* later in this chapter.

⁵⁹⁶ Plato, *Phaedo*, 82e – 83b.

specifically Homeric) way of life. It is the task of philosophy to convince the soul of this. It achieves this by a 'gentle persuasion' (even a subtle subversion), a replacement of the Homeric categories of actors making actions, with abstract categories in timeless systematic relationships.

7.3 The Ascent to the Divine: *Symposium*

In the *Symposium* and *Republic*, Plato develops for us a fuller account of how mathematics fits into this schema of *katharsis*.

The theory of *Recollection* as presented by Plato in the *Meno*⁵⁹⁷ would seem to suggest to us that knowledge (*epistêmê*) may be recovered, or re-collected, simply by the prodding and directing of one such as Socrates. The slave-boy example⁵⁹⁸ of this dialogue *prima facie* suggests that the process of recollection can be achieved at anytime, with only an afternoon's careful reflection. When we set this in the light of the *Symposium* and *Republic*, however, we must arrive at quite a different conclusion.

In the *Symposium* a moment's process of *recollection* becomes the much lengthier process of an *ascent to Being*. In the *Republic*, it becomes a life long quest of education.

Dramatically, the *Symposium* is a drinking party, in which a group of Athenians make speeches in praise of *Love*. In typical Socratic fashion, Socrates himself declines to make a formal speech, and resorts to a dialectic *elenchus* with Agathon the host. After this Socrates recounts a speech made to him by the Mantinean prophetess Diotima, a speech that is itself a dialectic between her and Socrates. Here Plato has Diotima speak of the ascent of the soul to knowledge, as with the *Phaedo*, in the language of *katharsis* and initiation into the Orphic mysteries.⁵⁹⁹

⁵⁹⁷ Plato, *Meno*, 80d – 82a.

⁵⁹⁸ Plato, *Meno*, 82b – 86c.

⁵⁹⁹ Morgan notes that the Lenaia festival recounted in the *Symposium*, was dedicated to the god Dionysus. By the fourth century BC the organiser of the festival, the *archon basileus*, was joined by the Eleusinian priests. Morgan therefore supposes a Dionysiac and Eleusinian religiosity in the language of the *Symposium*. Morgan, *Platonic Piety*, pp. 94-99. This, however, should not be thought as being inconsistent with an Orphic religiosity (contra Morgan, p. 95). Rather, as I have argued in Chapter Three, Dionysian and Apollonian religiosities are *synthesised* within Orphism. Further to this, Morgan himself notes (pp. 39, 63-64, 111, 199 n. 50) that the Eleusian mysteries have an Orphic connection. He states (at p. 199, n. 50), 'As Walter Burkert has pointed out to me, the prominence of Orphic themes and references in Pindar is an

Love is spoken of as a medium, or a *spirit* halfway between the world of men (the mortal) and gods (the immortal).

They form the medium of the prophetic arts, of the priestly rites of sacrifice, initiation, and incantation, of divination and of sorcery, for the divine will not mingle directly with the human, and it is only through the mediation of the spirit world that man can have any intercourse, whether waking or sleeping, with the gods. ... There are many spirits, and many kinds of spirits, too, and Love is one of them.⁶⁰⁰

Love, in the context of Diotima's speech, directs itself toward wisdom. In a sense it is the love or striving towards the Divine, which in philosophy represents the ideal of exhaustive rational systematicity.

Then tell me, Diotima, I said, who are these seekers after truth, if they are neither the wise nor the ignorant?

Why, a schoolboy, she replied, could have told you that, after what I've just been saying. They are those that come between the two, and one of them is Love. For wisdom is concerned with the loveliest of things, and Love is the love of what is lovely. And so it follows that Love is a lover of wisdom ...⁶⁰¹

For Plato, Love expresses itself as a rational pursuit. Here we have yet another distinct contrast between the oral-mythical and literate-philosophical ways of life. In the oral-mythical understanding, love is the way of acting that draws together concrete actors, and expresses close and intimate friendship and devotion. Plato transforms Love to be the drawing towards a greater and more coherent rational systematicity. Plato speaks in the language of the Orphic myths in the *Symposium*, but he is radically redrawing definitions in terms of the new philosophical way of life.

Love longs for the Good and the Good only, says Diotima.⁶⁰² This surely, we must correlate with the account of the Good in the *Republic* 505a – 509b. The Good, for Plato, functions as the One, the principle of Unity, upon which the plurality and diversity of both the immaterial Forms and the material sensibles is dependent. Love draws us up towards this unified rational Oneness.

indication of continuing modification during this period, and, if Graf is right, there was an "orphanic interpretation of Eleusis" that was established and widely accepted early in the fifth century.'

⁶⁰⁰ Plato, *Symposium*, 202e – 203a.

⁶⁰¹ Plato, *Symposium*, 204a-b.

⁶⁰² Plato, *Symposium*, 205e, 'Love never longs for either the half or the whole of anything except the good... for what we love is the good and nothing but the good.'

The heart of Diotima's speech centres upon the ascent of the soul to Beauty. This, however, is cast directly in the language of an initiation into an Orphic mystery. Diotima states,

Well now, my dear Socrates, I have no doubt that even you might be initiated into these, the more elementary mysteries of Love. But I don't know whether you could apprehend the final revelation, for so far, you know, we are only at the bottom of the true scale of perfection. ...

Well then, she began, the candidate for this initiation cannot, if his efforts are to be rewarded, begin too early to devote himself to the beauties of the body. ...⁶⁰³

Diotima goes on to describe the ascent of the soul through a beautiful body, through beautiful bodies in general, through beautiful souls, through beautiful laws and institutions, through beautiful sciences, and finally to the revelation of Beauty *in itself*. The language at this point is exactly that of the initiate, who has now purified himself, and has had the mysteries of the cult revealed to him.

And, turning his eyes toward the open sea of beauty, he will find in such contemplation the seed of the most fruitful discourse and the loftiest thought, and reap a golden harvest of philosophy, until, confirmed and strengthened, he will come upon one single form of knowledge, the knowledge of the beauty I am about to speak of. ...

Whoever has been initiated so far in the mysteries of Love and has viewed all these aspects of the beautiful in due succession, is at last drawing near the final revelation. And now, Socrates, *there bursts upon him that wondrous vision* which is the very soul of the beauty he has toiled so long for. It is an everlasting loveliness which neither comes nor goes, which neither flowers nor fades, for such beauty is the same on every hand, the same then as now, here as there, this way as that way, *the same to every worshipper as it is to every other.*

Nor will his vision of the beautiful take the form of a face, or of hands, or of anything that is of the flesh. It will be neither words [*tis logos*], nor knowledge [*tis epistêmê*], nor a something that exists in something else, such as a living creature, or the earth, or the heavens, or anything that is — but subsisting of itself and by itself in an eternal oneness, while every lovely thing partakes of it in such a sort that, however much the parts may wax and wane [or, 'come into being and go out of being'], it will be neither more nor less, but still the same inviolable whole.

And so, when his prescribed devotion to boyish beauties *has carried our candidate so far* that the universal beauty dawns upon his inward sight, *he is almost in reach of the final revelation.* And this is the way, the only way, *he must approach, or be led toward, the sanctuary of Love.*⁶⁰⁴

The final step in the ascent is something that *bursts* in upon the initiate. Up to this point, the initiate has come to realise, *rationally* it would appear, the beauty present in the

⁶⁰³ Plato, *Symposium*, 209e – 210a.

⁶⁰⁴ Plato, *Symposium*, 210d – 211c. Emphases added.

higher stages of the ascent. But now, having observed the beauty in the branches of the sciences (*tas epistêmas*) he totters on the brink of the *final revelation*. Here the initiate has undergone his washings of *katharsis* (purification). He is ready to have the mysteries *revealed* to him. But the language Plato uses indicates just that, namely, it is something that is *revealed* — *bursts in* as a vision. The initiate does not achieve this step by himself. It is not as though the initiate pulls himself up to the final vision. Rather it is as though the final vision pulls the initiate up to itself. It has to be given, revealed, unveiled, and disclosed to the initiate. Just as in the Orphic mysteries, the purified initiate finds himself completely dependent upon the priest to reveal the mysteries to him.

This clearly *philosophical* initiation ceremony acquires as its final goal the revelation of Being itself. Yet what interests us here is the place of mathematics in this schema. Important in this regard is the penultimate step, taken immediately before the revelation of Beauty *in itself*. Concerning this step Plato has Diotima state,

And next, his attention should be diverted from institutions *to the sciences* [*tas epistêmas*], so that he may know the beauty of *every kind of knowledge* [*epistêmon*]....

From institutions *to learning* [*mathêmata*], and from learning in general to the special lore that pertains to nothing but the beautiful itself ...⁶⁰⁵

The study of the *sciences* precedes the revelation of Being, in the *Symposium's* ascent. But what are these sciences? The two terms employed by Plato here are 'epistêmê' and 'mathêmata'. We must bear in mind that the term 'mathêmata', although the root of our contemporary English term 'mathematics', did not at this stage in classical Greek carry the same meaning as our English term. Rather, for the Greeks before Plato 'mathêmata' meant simply 'learning — that which is learnt'.⁶⁰⁶

Yet these two words are not merely general terms for Plato, for in the context of his philosophy they hold a specialised significance. To anticipate the later discussion of the *Republic*, when Plato begins speaking of the education of the guardians and philosopher-kings, he states that they must undertake a very particular course of *learning* (μάθημα —

⁶⁰⁵ Plato, *Symposium*, 210c-d, 211c. Emphases added.

⁶⁰⁶ The Modern English word *mathematics* comes to us via Middle English, from medieval Latin *mathematicalis*. This in turn is from the Latin *mathematicus*, from the Greek *mathêma*, *mathêmat-*, which means a *science* or *learning*, from the root *manthanein*, *math-* (aorist stem), which means *to learn*. All of which is based on an Indo-European root *mendh-*, which also means *to learn*.

mathêma).⁶⁰⁷ This consists of arithmetic, geometry, solid geometry, astronomy, and harmonics. As practised in Plato's academy, these are what we today would call *mathematical sciences*.

Plato also occasionally speaks of these mathematical sciences as *epistêmê* (knowledge).⁶⁰⁸ Yet when we consider his terminology carefully, Plato has Socrates admit of a reticence over the use of this term. They are called *sciences* (*epistêmê*) because of habit, but a better way to designate them would be *understanding* (*dianoia*).

... dialectic gently draws it forth and leads it up, employing as helpers and co-operators in this conversion the studies and sciences which we enumerated, which we called sciences [ἐπιστήμας — *epistêmas*] often from habit, though they really need some other designation, connoting more clearness [ἐναργεστέρου — *enargesterou*] than opinion [δόξας — *doxas*] and more obscurity [ἀμυδροτέρου — *amudroterou*] than science [ἐπιστήμης — *epistêmês*]. 'Understanding' [διάνοιαν — *dianoian*], I believe, was the term we employed. But I presume we shall not dispute about the name when things of such moment lie before us for consideration.⁶⁰⁹

For Plato then, it seems that the term '*epistêmê*' can function as designating the mathematical sciences, but properly speaking it designates the knowledge we have of Being (the Forms) itself. Given his usage of these terms *epistêmê* and *mathêma*, in the *Republic*, I wish to suggest that in his use of these joint terms in the *Symposium*, Plato means those exact same five disciplines, namely, arithmetic, geometry, solid geometry, astronomy, and harmonics.

In the *Symposium* 210c-d, Plato does not use the term '*epistêmê*' to speak specifically of the knowledge of *things in themselves* (Being). It is the final revelation, the next step in the ascent that gives the knowledge of Beauty *in itself*. The philosophical initiate stands here at the penultimate step.

⁶⁰⁷ Plato uses the term *mathêma* to describe these in, for example, *Republic*, 522e, 'Shall we not, then, I said, set down as a study [μάθημα — *mathêma*] requisite for a soldier the ability to reckon and number? ... Do you observe then, said I, in this study [μάθημα — *mathêma*] what I do?'; 525c, 'It is befitting, then Glaucon, that this branch of learning [μάθημα — *mathêma*] should be prescribed by our law...'; 527c, 'Shall we, then, lay this down [i.e. geometry] as a second branch of study [μάθημα — *mathêma*] for our lads?'; 528d-e, '...the next thing in order is the study of the third dimension, or solids ... Then as our fourth study [μάθημα — *mathêma*], said I, let us set down astronomy...'

⁶⁰⁸ Plato, *Republic*, 527a, '...those who have even a slight acquaintance with geometry, that this science [ἐπιστήμη — *epistêmê*] is...'; 530d, '... that as the eyes are framed for astronomy so the ears are framed for the movements of harmony, and these are in some sort kindred sciences [ἐπιστήμαι — *epistêmai*], as the Pythagoreans affirm and we admit...'

⁶⁰⁹ Plato, *Republic*, 533d.

Given these three conditions then, that (1) the objects in view in this penultimate step are *jointly* described as *epistêmê* and *mathêma*; (2) this *joint* terminology is consistent with speaking of the mathematical sciences in the *Republic* 521c – 535a; and (3) that this penultimate step in the *Symposium* cannot be speaking of the knowledge of *things in themselves* (e.g. *Beauty in itself*), then I conclude that the *epistêmê* and *mathêma* of the penultimate step in the *Symposium* also specifically speak of the mathematical sciences.

It is not, therefore, just any branch of general learning that Plato refers to here, but rather those branches of learning that we today call *mathematics*.

In the ascent to the knowledge of Being, mathematics prepares us for that last and final step, when knowledge of true Being breaks in upon us. The *Symposium* itself does not fully develop this idea, but we should certainly notice that Plato presents us with the seeds of the much more detailed discussion in *Republic* 521c – 535a. In the *Symposium*, what unfolds of this idea can be found in the nature of the soul's ascent through the various steps.

At the first step, the initiate ascends from beauty in an individual body, to beauty in bodies in general. He grasps the truth that beauty is just as much present in all bodies as in merely one body. He moves *rationally*, from acknowledging beauty in the particular, to acknowledging beauty in the general plurality of bodies.⁶¹⁰

At the second step, he is brought to see that the beauty present in a soul is of a higher and nobler sort than beauty in bodies. Souls are connected with the immortal and immaterial, whereas bodies are merely mortal and material. No matter how little beauty a soul has, it will always be lovelier than a body.⁶¹¹

At the third step, the initiate moves through to perceiving the beauty of laws and institutions. The laws and institutions bring harmony and order to the soul, or make it beautiful. They tend to the soul, building it into a *noble nature*.⁶¹²

⁶¹⁰ Plato, *Symposium*, 210a-b.

⁶¹¹ Plato, *Symposium*, 210b-c.

⁶¹² Plato, *Symposium*, 210c.

At the fourth step, the penultimate step, we arrive at the mathematical sciences. Beauty here is not isolated to a single instance of an institution. Rather, as an open sea, beauty unveils itself in the plurality of the mathematical sciences. Even more so, in order to have *just* institutions and laws, we need to know what justice is, which means we need to have an ethical togetherness. The soul begins to achieve this togetherness, or justice, by understanding harmony and proportion revealed by the mathematical sciences. In the *Republic* we know that this can be brought about by the harmony within the parts of the soul, with the *rational* part controlling the others.⁶¹³ For Plato, by studying these mathematical sciences, the soul can begin to get itself together into rational harmony.

To begin to appreciate the Platonic relationship between mathematics and ethics, one only has to consider the ancient reports of Plato's lecture *On the Good*, which much to the surprise of many listeners was a lecture on mathematics.⁶¹⁴

Mathematics then, is the highest kind of preparation for the soul, prior to its contact with Being — in this case Beauty *in itself*. Plato hints to us here, what he develops more explicitly in the *Republic*, that mathematics forms the *katharsis* of initiation into the mysteries of philosophy.

We next turn, then, to the *Republic*, and to its fuller account of both mathematics and education.

⁶¹³ Plato, *Republic*, 441d-e, 'We must remember, then, that each of us also in whom there several parts within him perform each their own task – he will be a just man and one who minds his own affair. ... Does it no belong to the rational part to rule, being wise and exercising forethought in behalf of the entire soul... Assuredly.'

⁶¹⁴ The principle source for ancient reports concerning Plato's lecture *On the Good*, is Aristotle, *frag.* 26-31. This lecture is further attested to in, Simplicius, *In Aristotelis Physica commentaria*, 151.6ff, 453.25ff; Heraclides, in Diogenes Laertius, *Lives*, 5.87; Xenocrates, in Diogenes Laertius, *Lives*, 4.13. See also reports of this lecture from Hermodorus, in Simplicius, *In Aristotelis Physica commentaria*, 247.30ff; In particular, in, Aristoxenus, *Elementa Harmonica*, II 30-31 = Aristotle, *frag.* 26, Aristoxenus states, 'This, as Aristotle was always saying, was the experience of most of those who heard Plato's lecture *On the Good*. Each of them attended on the assumption that he would hear about one of the recognised human goods – such as wealth, health, strength, and in general some marvellous happiness. When Plato's lectures turned out to be about mathematics – numbers, geometry, astronomy – and to crown all about the thesis that the good is one, it seemed to them, I fancy, something quite paradoxical; and so some people despised the whole thing, while others criticised it.'

7.4 The Education Syllabus: *Republic*

7.4.1 Mathematics in the Syllabus

In books six and seven of the *Republic*, Plato presents us with five allegories, namely, *The Ship of State* (*Republic* 488a – 493d), *The Great Beast* (*Republic* 493a – 494c, 496d), *The Sun* (*Republic* 507b – 509c), *The Divided Line* (*Republic* 509c – 511e, 533e – 534a), and *The Cave* (*Republic* 514a – 519b). These allegories speak to a number of issues that connect politics, epistemology, and ontology, for Plato. We will have recourse to look more closely at the *Divided Line* and the *Cave* in the following sections.

After presenting these allegories to us, Plato considers educational training for the political leadership of the just state. He presents us with the following schema, and timetable (*Republic* 535a – 540c):

Age	Educational Syllabus
6-17	Basic preliminary education.
17-20	Physical training in gymnastics and battle formation.
20-30	The elite will enter into a course of the five mathematical sciences.
30-35	A further elite will enter into a course of dialectic (philosophy).
35-50	A period of public service as soldiers, and managers. This will provide experience, and test the distractions and temptations of office.
50+	Another elite will enter into the study of Being (the Forms), and finally of the Good itself (beyond being, and the source of the Forms). They will be required to hold the highest political offices.

It was this clear exposition of the stages of education that I used in order to interpret the *Symposium*’s penultimate step in the ascent. I contend that this educational syllabus also provides for us the key through which to unlock the place of mathematics in the allegories of the *Divided Line* and the *Cave*, following the model of the *Symposium*. In all

these allegories, mathematics plays a *kathartic* role in the initiation to philosophy, or the ascent to Being.

Plato introduces the five-fold study of the mathematical sciences into the flow of the dialogue by emphasising the previously discussed distinction between *Becoming* and *Being*.

Would you, then, have us proceed to consider how such men may be produced in a state and how they may be led upward to the light even as some are fabled to have ascended from Hades to the gods?

Of course I would.

So this, it seems, would not be the whirling of the shell in the children's game, but a conversion and turning about of the soul from a day whose light is darkness to the veritable day — that ascension to reality of our parable which we will affirm to be true philosophy.⁶¹⁵

The non-philosophical man lives in comparative gloom. In particular the older oral-mythical way of life, identified so closely with Homer, is shrouded in darkness. It is the new literate-philosophical way of life that will liberate the soul. It is the knowledge of Reality — true Being — that philosophy aims toward. Plato even compares this ascent of philosophy to the *fabled* or mythic ascension of men from Hades to the gods. This surely provides us with a clue that he is using this mythic language allegorically in order to express his new philosophical ideals.

Plato has Socrates then ask,

Must we not, then, consider what studies have the power to effect this?

Of course.

What, then, Glaucon, would be the study that would draw the soul away from the world of becoming to the world of being?⁶¹⁶

Which activity, in other words, will prepare the soul? Which activity will *purify* the soul from its attachment to Becoming, and initiate it into an attachment with Being?

Here Plato has Socrates launch into a description of the five-fold mathematical sciences, as the course of study that will achieve this goal. The mathematical sciences, then, will have a kathartic effect of purifying the soul of the initiate from Becoming, and prepare him for the study of Being or true philosophy.

⁶¹⁵ Plato, *Republic*, 521c.

⁶¹⁶ Plato, *Republic*, 521d.

All five of the mathematical sciences engender this in the soul.

Arithmetic:

And the qualities of number [ἀριθμῶν — *arithmon*] appear to lead to the apprehension of truth.

Beyond anything, he said.

Then, as it seems, these would be among the studies that we are seeking. For a soldier must learn them in order to marshal his troops, and a philosopher because he must rise out of the region of generation and lay hold on essence or he can never become a true reckoner. ...

...to follow it up until they attain to the contemplation of the nature of number, by pure thought... [for the purpose of] facilitating the conversion of the soul itself from the world of generation to essence and truth.⁶¹⁷

Geometry, both plane and solid:

That is readily admitted, he said, for geometry is the knowledge of the eternally existent.

Then, my good friend, it would tend to draw the soul to truth, and would be productive of a philosophical attitude of mind, directing upward the faculties that now wrongly are turned earthward.⁶¹⁸

Astronomy:

...if we are to have a part in the true science of astronomy and so convert to right use from uselessness that natural indwelling intelligence of the soul.⁶¹⁹

And finally, harmony:

[Harmony if studied rightly is] ... useful, said I, for the investigation of the beautiful and the good...⁶²⁰

These five mathematical sciences function only as intermediaries however. They are the purification rites used to aid the highest *capstone* study, namely, dialectic or philosophy, which studies Being itself — true knowledge. The mathematical sciences act as the handmaidens of philosophy (dialectic).

⁶¹⁷ Plato, *Republic*, 525b-c.

⁶¹⁸ Plato, *Republic*, 527b.

⁶¹⁹ Plato, *Republic*, 530c.

⁶²⁰ Plato, *Republic*, 531c.

7.4.2. The Way that Mathematics Purifies the Soul, and Guides it to Being

7.4.2.1 The Five Mathematical Sciences as the Guide to Purification

Having seen that the role Plato assigns to mathematics is to help purify the soul (*katharsis*) for the philosophical study of Being, it remains for us to ask *how* mathematics is supposed to achieve this function. What is the *way* in which mathematics purifies the soul?

In his discussion concerning the place of mathematics within the educational syllabus, Plato clarifies how mathematics is suited for this role. In order to survey his discussion, I shall here examine each of the five mathematical sciences in turn.

7.4.2.2 Arithmetic (*Republic* 522c – 526c)

Plato has Socrates declare that arithmetic can ‘draw the mind to essence and reality’. He proceeds to explain how this is effected. When our perceptions seem inadequate to us, the intellect is called in to reflect upon the situation and to bring order out of what might seem contrary. These *prima facie* inadequate perceptions provoke us to deeper thought.⁶²¹

The example used to indicate this is the *Three Fingers* (*Republic* 523c – 524d). Look at three fingers on your hand, the little finger, the second, and the middle finger. In so far as each of these is observed and taken to be a finger, there exists no confusion in the soul. It matters not in this regard whether that finger be the little one, or the middle one, or thick, thin, white or black. *Prima facie*, the finger does not appear as both a *finger* and *not a finger* at the same time. Because of this, for most people, the situation does not invite them to further reflect on *what a finger actually is*.⁶²²

⁶²¹ Plato, *Republic*, 523b-c, ‘... some reports of our perceptions do not provoke thought to reconsideration because the judgement of them by sensation seems adequate, while others always invite the intellect to reflection because the sensation yields nothing that can be trusted. ... The experiences that do not provoke thought are those that do not at the same time issue in a contradictory perception. Those that do have that effect I set down as provocatives, when the perception no more manifests one thing than its contrary...’

⁶²² Plato, *Republic*, 523d, ‘For in none of these cases is the soul of most men impelled to question the reason and to ask what in the world is a finger, since the faculty of sight never signifies to it at the same time that the finger is the opposite of a finger.’

However, when it comes to such things as whether the fingers are perceived as soft or hard, light or heavy, the sensations presented to the soul are in conflict. The senses indicate that the fingers are both soft and hard, and yet soft and hard are contraries. At this point the soul is at a loss, in a state of confusion.⁶²³

This drives the soul to summon the *calculating reason* (λογισμὸν — *logismon*), in order to assist it out of its confusion by assessing whether what is reported to it is just *one* thing or rather *two* things. *Logistic* (calculating reason) functions to enable the soul to distinguish a plurality *as a plurality*. Plato has Socrates state,

And if it appears to be two, each of the two is a distinct unit. Yes. If, then, each is one and both two, the very meaning of 'two' is that the soul will conceive them as distinct. For if they were not separable, it would not have been thinking of two, but of one.⁶²⁴

Two things, then, are able to be distinguished from each other. It is the principle of plurality and distinction that *logistic* (calculating reason) brings to bear upon the situation. In terms of the Platonic cosmology of Chapter Six, it is the Dyad, the principle of plurality, that is here expressed in the ability of logistic to even make a distinction.

In seeking this distinction, however, the soul is both released from its perplexity, and at the same time driven towards the intelligible and away from the visible.

It is released from perplexity in that now the soul manages to differentiate the simultaneously contrary perception as instead *two distinct things*. Rather than a perplexing confusion of hard and soft, or great and small, the soul, through the aid of the logistic reason, conceives the hard and the soft, the great and small, to be differentiated. The *prima facie* confusion of the contraries is resolved.⁶²⁵

⁶²³ Plato, *Republic*, 524a, 'In the first place, the sensation that is set over the hard is of necessity related also to the soft, and it reports to the soul that the same thing is both hard and soft to its perception. ... Then, said I, is not this again a case where the soul must be at a loss as to what significance for it the sensation of hardness has, if the sense reports the same thing as also soft?'

⁶²⁴ Plato, *Republic*, 524b.

⁶²⁵ Plato, *Republic*, 524c, 'Sight too saw the great and the small, we say, not separated but confounded. Is that not so? Yes. And for clarification of this, the intelligence [νόησις — *noêsis*] is compelled to contemplate the great and small, not thus confounded but as distinct entities, in the opposite way from sensation. True.'

The soul is driven toward the intelligible in that now it asks for the first time, what *is* the great, what *is* the small?⁶²⁶

It is when such pairs of contraries as great and small, hard and soft, present themselves confounded to the senses, that logistic, and intelligence, must be used in order to bring order and intelligibility to the situation. It also suggests to us the distinctly Platonic motive of searching for the meaning of great and small, hard and soft, and so forth, not in sense experience, which is confounded and confusing. Rather, we are to search for the meaning in a realm within the purview only of the faculty of the intellect.

Into this scene Plato inserts both numbers (*arithmoi*) and the unit.⁶²⁷ They belong to that class of things that stir the soul away from sense perception and arouse it to contemplate Being.⁶²⁸ Any visual perception, claims Plato, involves both a confounding of plurality and unity.

But surely, he said, the visual perception of it does especially involve this. For we see the same thing at once as one and as an indefinite plurality.

Then if this is true of the one, I said, the same holds of all number, does it not? Of course.⁶²⁹

In the example of the three fingers, that there were fingers being experienced was not problematic to the soul. But that this experience was of soft and hard, of great and small, and so forth, and of an indefinite plurality of things *was* problematic. It took the logistic reason to be able to apply the category of *arithmoi* to the situation, and discern that there were two (or more) numerically distinct things (*arithmoi*) in view, and that *great* was numerically distinct from *small*, and *hard* from *soft*. The ability to perform a numerical distinction served as the prerequisite to intelligibly experience the situation in

⁶²⁶ Plato, *Republic*, 524c, 'And is it not in some such experience as this that the question first occurs to us, What in the world, then, is the great and the small?'

⁶²⁷ We must bear in mind that for the ancient Greeks, *one* is not an *arithmos*, as an *arithmos* is a collection of things – i.e. *plurality* of units.

⁶²⁸ Plato, *Republic*, 524d – 525a, 'To which class, then, do you think number [ἀριθμός – *arithmos*] and the one belong? ... Well, reason it out from what has already been said. For, if unity is adequately seen by itself or apprehended by some other sensation, it would not tend to draw the mind to the apprehension of essence, as we were explaining in the case of the finger. But if some contradiction is always seen coincidentally with it, so that it no more appears to be one than the opposite, there would forthwith be need of something to judge between them, and it would compel the soul to be at a loss and to inquire, by arousing thought in itself, and to ask, whatever then is the one as such, and thus the study of unity will be one of the studies that guide and convert the soul to the contemplation of true being.'

⁶²⁹ Plato, *Republic*, 525a.

an ordered way. But this itself leads the soul to ask the questions, what is one? What is two? What are numbers (*arithmoi*)?⁶³⁰

Because the logistic reason had to import these concepts into the situation of sense experience in order for it to be intelligible, then the study of these *arithmoi* will invariably draw the soul away from sense experience, and draw it toward the invisible. In so doing, the soul may contemplate and study the one as such — *unity* in and of itself.

Importantly, Plato has Socrates distinguish between ‘numbers in themselves’ (αὐτῶν τῶν ἀριθμῶν — *autôn tôn arithmôn*) and ‘numbers attached to visible and tangible bodies’ (ὁρατὰ ἢ ἀπὸ τὰ σώματα ἔχοντας ἀριθμοὺς — *horata e hapta sômata echontas arithmous*). He states,

It leads the soul forcibly upward and compels it to discuss the numbers themselves [*auton ton arithmon*], never permitting anyone to propose for discussion numbers attached to visible or tangible bodies.⁶³¹

At this stage we may legitimately ask, what is the distinction that Plato here wishes to frame? Plato provides us with a clue in the form of an example, and a definition drawn from this.

The example, which motivates the distinction, is this,

For you are doubtless aware that experts in this study, if anyone attempts to cut up the ‘one’ in argument, laugh at him and refuse to allow it, but if you mince it up, they multiply, always on guard lest the one should appear to be not one but a multiplicity of parts.⁶³²

And the definition which follows,

Suppose now, Glaucon, someone were to ask them, My good friends, what numbers are these you are talking about, in which the one is such as you postulate, each unity equal to every other without the slightest difference and admitting no division into parts? What do you think would be their answer?

⁶³⁰ Compare this with a similar passage in, Plato, *Phaedo*, 101b-e. There Plato discusses the *prima facie* confusion that results from saying that ten is larger than eight, by two, when two is only a small thing. How then, can something be large, as a result of something small? This invites Plato to a discussion of how sensible objects become distinct *arithmoi* (amounts), by participation in duality, unity, and so forth.

⁶³¹ Plato, *Republic*, 525d. Grube translation (rev. Reeve, from the Cooper ed.). I prefer Grube’s more literal rendering of the phrase ‘αὐτῶν τῶν ἀριθμῶν — *autôn tôn arithmôn*’ as ‘numbers themselves’ rather than Shorey’s rendering of the phrase as ‘pure numbers’, used in the Loeb edition of the *Republic*. Shorey does offer a more literal rendering in a footnote, however, as, ‘numbers (in) themselves’. In, Shorey, *The Republic*, p. 164, footnote a.

⁶³² Plato, *Republic*, 525e.

This, I think — that they are speaking of units which can only be conceived by thought, and which it is not possible to deal with in any other way.⁶³³

Here Plato draws to our attention the fact that a mathematical unity cannot itself be divided into parts, otherwise it would not be a unity, but a plurality of parts. At least, this was how the ancient Greeks understood unity. Modern mathematics has quite a different understanding of number, where *one* functions as a number, and can be understood as a composite of fractional parts. For the ancient Greeks, fractions were not composites of *arithmoi*, but rather ratios or proportions between two (or more) *arithmoi*. For example, *three-quarters* was not a fractional composite of *one*, but rather the ratio between the *arithmoi* of three things and four things.

When we are exposed to any given *tangible and visible* experience of bodies, where we identify a unity present in that situation, we are tempted to ‘cut up the one’, or ‘mince it up’. For example, the *unity* present in *one* orange, can become *two* pieces, *three* pieces, and so forth, if I cut up that one orange with a knife. We are tempted to conceive the *one* as having been split up and divided. Certainly the *one orange* has been effected in this way. But has *unity* been so effected? No, answers Plato.

Arithmetical experts laugh at such a suggestion. When someone tries to mince up unity, the experts re-express the situation as an original multiplicity of *arithmoi*. This they do in such a manner as to avoid the suggestion that *unity* has been divided in any way. For in any of these *tangible and visible* situations, *arithmoi* are attached to different *objects*. The *one orange*, can be also understood as two or three *pieces of orange*.

But if we consider unity and these *arithmoi in themselves*, not as *attached* to tangible and visible objects, then we must understand the units of these *arithmoi* as invisible and intangible objects, as things that can only be apprehended by the intellect. These invisible and intangible units, the things of which *arithmoi in themselves* form collections, are ‘equal to every other without the slightest difference and admitting no division into parts’.

Plato suggests that when the soul is forced to negotiate sense experience with the aid of logistic reason (i.e. the application of the distinction between *arithmoi*), then the

⁶³³ Plato, *Republic*, 526a.

soul is also drawn to ask, what *is* an *arithmos in itself*? In other words, what is a *collection of things*, in so far as it is a *collection*? The answer is to consider *arithmoi in themselves* as collections of *units*, where those *units* are invisible, intangible, and simple (i.e. indivisible), and as such can only be apprehended by the intellect.

All *Becoming*, then, has been stripped away from *arithmoi*. The soul is drawn to true *arithmoi*, *arithmoi in themselves*, and therefore directed to look at *arithmoi* as *Being*. What *arithmoi* truly are, then, can only be apprehended by the intellect. Just as with true beauty, and true justice, and true piety, so also with true *arithmoi*. All these things are mirrored in the sensible world of *Becoming*, but the true realities themselves exist in the intellectual world of *Being*.

7.4.2.3 Geometry (*Republic* 526c – 527c)

Like arithmetic, geometry is a study that if undertaken correctly will lead the soul away from *Becoming*, to embrace *Being*.

Plato has Socrates here criticise the way in which geometry is spoken of among its adepts. He states,

... this science is in direct contradiction with the language employed in it by its adepts.

How so? He said.

Their language is most ludicrous, though they cannot help it, for they speak as if they were doing something and as if all their words were directed towards action. For all their talk is of squaring and applying and adding and the like, whereas in fact the real object of the entire study is pure knowledge.⁶³⁴

For Plato, geometry studies that which always *is*, the eternally *existent*. To speak, as the geometers do, of bringing a square into existence by constructing it and so forth, simply misunderstands the true nature of geometry.

[Geometry] is the knowledge of that which always is, and not of a something which at some time comes into being and passes away.

That is readily admitted, he said, for geometry is the knowledge of the eternally existent.

⁶³⁴ Plato, *Republic*, 527a.

Then, my good friend, it would tend to draw the soul to truth, and would be productive of a philosophical attitude of mind, directing upward the faculties that now are turned earthward.⁶³⁵

We can only surmise from this that the true object of geometrical investigations would not be any particular figures drawn or constructed, *brought into being*, by geometers. These, one supposes, could all be spoken of in a similar fashion to the *arithmoi*, as being ‘*plane figures* attached to visible and tangible bodies’. These plane figures in and of themselves, are things that can be apprehended only by the intellect. Indeed, further in his discussion on astronomy, Plato has Socrates state,

... we must use... patterns to aid in the study of those realities, just as one would do who chanced upon diagrams drawn with special care and elaboration by Daedalus or some other craftsman or painter. For anyone acquainted with geometry who saw such designs would admit the beauty of the workmanship, but would think it absurd to examine them seriously in the expectation of finding in them the absolute truth with regard to equals or doubles or any other ratio.⁶³⁶

The focus of one’s activity is pulled away from contemplating figures of sense perception, to intellectually contemplating the figures *in themselves*, which are merely *imaged* in our sense perception. Plato even suggests that this intellectual training prepares us to gaze upon the idea of the Good itself.

What we have to consider is whether the greater and more advanced part of it [i.e. geometry] tends to facilitate the apprehension of the idea of good. That tendency, we affirm, is to be found in all studies that force the soul to turn its vision round to the region where dwells the most blessed part of reality, which it is imperative that it should behold.⁶³⁷

7.4.2.4 Solid Geometry (*Republic* 527d – 528d)

Plato also speaks of the need to study these geometrical objects *in themselves* in his brief discussion on solid geometry.

After plane surfaces, said I, we went on to solids in revolution before studying them in themselves. The right way is next in order after the second dimension to take the third. This, I suppose, is the dimension of cubes and of everything that has depth.⁶³⁸

⁶³⁵ Plato, *Republic*, 527b.

⁶³⁶ Plato, *Republic*, 529d – 530a.

⁶³⁷ Plato, *Republic*, 526d-e.

⁶³⁸ Plato, *Republic*, 528b.

Here, more interestingly, Plato introduces the idea of three-dimensional space as functioning in some sense as a non-contingent aspect of Being. Figures such as cubes, and spheres, may be contemplated as three-dimensional objects, in themselves, apart from any particularised spatial location, or size, as would be the case in a visible and tangible figure.⁶³⁹

7.4.2.5 Astronomy (*Republic* 528e – 530c)

Plato is equally critical of the present practice of astronomers, with their constant gazing at the stars, and never pressing on to study the motion of solid objects in themselves. Plato has Socrates criticise Glaucon for his praise of astronomy for its purely utilitarian ends, such as ‘quickness of perception about the seasons and the courses of the months and the years’.⁶⁴⁰ Glaucon reappraises astronomy as leading the soul to ‘look upwards’ towards ‘higher things’, as surely everyone would admit.⁶⁴¹ But Socrates is not so sure.

It may be obvious to everybody except me, said I, for I do not think so. ... As it is now handled by those who are trying to lead us up to philosophy, I think that it turns the soul’s gaze very much downward.⁶⁴²

Plato has Socrates explain,

You seem to me in your thought to put a most liberal interpretation on the ‘study of higher things,’ I said, for apparently if anyone with a back-thrown head should learn something by staring at decorations on a ceiling, you would regard him as contemplating them with the higher reason and not with the eyes. Perhaps you are right and I am a simpleton. For I, for my part, am unable to suppose that any other study turns the soul’s gaze upward than that which deals with being and the invisible. But if anyone tries to learn about the things of sense, whether gaping up or blinking down, I would never say that he really learns — for nothing of the kind admits of true knowledge — nor would I say that his soul looks up, but down, even though he study floating on his back on sea or land.⁶⁴³

⁶³⁹ See also the previous discussion in Chapter Six (Section 6.3.2), concerning this concept of space (χώρα – *chôra*) in connection with *Timaeus* 52b-c.

⁶⁴⁰ Plato, *Republic*, 527d.

⁶⁴¹ Plato, *Republic*, 528e – 529a, ‘That is likely, said he, and instead of the vulgar utilitarian commendation of astronomy, for which you just now rebuked me, Socrates, I now will praise it on your principles. For it is obvious to everybody, I think that this study certainly compels the soul to look upward and leads it away from things here to those higher things.’

⁶⁴² Plato, *Republic*, 529a.

⁶⁴³ Plato, *Republic*, 529a-c.

As with the study of *arithmoi*, and geometry, the visible and tangible bodies may give a starting point for the soul to reflect upon, but the science is ultimately concerned with things *in themselves*. Thus astronomy is ultimately the study of three-dimensional bodies in motion.

These sparks that paint the sky, since they are decorations on a visible surface, we must regard, to be sure, as the fairest and most exact of material things, but we must recognize that they fall far short of the truth, the movements, namely, of real speed and real slowness in true number and in all true figures both in relation to one another and as vehicles of the things they carry and contain. These can be apprehended only by reason and thought, but not by sight...⁶⁴⁴

The real astronomer will not make the mistake of supposing that such ‘bodies and visible objects’ are the realities themselves.

7.4.2.6 Harmonics (*Republic* 530c – 531c)

As the eyes are framed for astronomy, so are the ears for harmony, and so the two form kindred sciences.⁶⁴⁵ Yet here, its practitioners commit the same mistakes as do the astronomers who look to visible and tangible bodies.

[Socrates:] Or do you not know that they repeat the same procedure in the case of harmonics [as they do in astronomy]? They transfer it to hearing and measure audible concords and sounds against one another, expending much useless labour just as the astronomers do. ... [Glaucón:] They talk of something they call minims and, laying their ears alongside, as if trying to catch a voice from next door, some affirm that they can hear a note between and that this is the least interval and the unit of measurement, while others insist that the strings now render identical sounds, both preferring their ears to their minds. ... [Socrates:] [I mean] those others whom we just now said we would interrogate about harmony. Their method exactly corresponds to that of the astronomer, for the numbers they seek are those found in these heard concords, but they do not ascend to generalized problems and the consideration which numbers are inherently concordant and which not and why in each case.⁶⁴⁶

Once again, it is not harmonic concords as expressed in audible and tangible things that form the object of study, but rather it is those harmonic concords considered intellectually, in and of themselves.

⁶⁴⁴ Plato, *Republic*, 529c-d.

⁶⁴⁵ Plato, *Republic*, 530d.

⁶⁴⁶ Plato, *Republic*, 530e – 531c.

Interestingly, Plato stresses the nature of these mathematical studies as merely a first step in a much more expansive journey.

[Glaucón:] A superhuman task, he said.

[Socrates:] Say, rather, useful, said I, for the investigation of the beautiful and the good, but if otherwise pursued, useless.

Plato, through Socrates, once again reminds us that studying these mathematical sciences merely *prepares* our souls. They operate as an initial *katharsis*, with the higher goal of leading the soul to study Being *in itself*, through philosophy or dialectic. Even more so, these studies prepare us to contemplate the source of Being, namely, the Good.⁶⁴⁷

7.5 The Divided Line: *Republic*

7.5.1 The Divisions of the Line

Having now laid the groundwork for understanding the *kathartic* role of mathematics, we are in a position to apply this to the two great allegories of the *Divided Line* and the *Cave*.

Plato introduces the *Divided Line* in *Republic* 509c – 511e, 533e – 534a. In the *Divided Line* Plato firstly distinguishes between two *regions* — that of the *intelligible* and that of the *visible*. The visible region consists of things that are open to our sense experience, exemplified by the sense of sight. The intelligible region consists of things that are open to our logos or reason.

Conceive then, said I, as we were saying, that there are these two entities, and that one of them is sovereign over the intelligible order and region and the other over the world of the eyeball, not to say the sky-ball, but let that pass. You surely apprehend the two types, the visible and the intelligible.⁶⁴⁸

⁶⁴⁷ Plato, *Republic*, 531d, ‘Are you talking about the prelude, I said, or what? Or do we not know that all this is but the preamble of the law itself, the prelude of the strain that we have to apprehend?’

⁶⁴⁸ Plato, *Republic*, 509d.

We have then:

Intelligible region

Visible region

Next, Plato delineates a further division. Each of these regions can be divided into two *sections*. Firstly, the region of the visible is to be divided.

Represent them then, as it were, by a line divided into two unequal sections and cut each section again in the same ratio — the section, that is, of the visible and that of the intelligible order — and then as an expression of the ratio of their comparative clearness and obscurity you will have, as one of the sections of the visible world, images. By images I mean, first, shadows, and then reflections in water and on surfaces of dense, smooth, and bright texture, and everything of that kind, if you apprehend.

I do.

And the second section assume that of which this is a likeness or an image, that is, the animals about us and all plants and the whole class of objects made by man.⁶⁴⁹

So now, we have:

Intelligible region

Visible region:

(3) *Images*: sensible objects

(4) *Images of Images*: Images of sensible objects — reflections and shadows

Plato, then, divides the visible region into those things that are sensible objects (such as trees, cows, couches, etc), and those things that are images or copies of these sensible objects (such as the reflection of a tree in water, the shadow of a cow, or a painting of a couch, etc.).

Plato also divides the intelligible region into two *sections*.

Consider then again the way in which we are to make the division of the intelligible section.

⁶⁴⁹ Plato, *Republic*, 509d – 510a.

In what way?

By the distinction that there is one section of it which the soul is compelled to investigate by treating as images the things imitated in the former division, and by means of assumptions from which it proceeds not up to a first principle but down to a conclusion, while there is another section in which it advances from its assumption to a beginning or principle that transcends assumption, and in which it makes no use of the images employed by the other section, relying on ideas only and progressing systematically through ideas.⁶⁵⁰

This description, however, is somewhat more complicated than the division of the visible region. Plato here combines a treatment of not only what *objects* are associated with each section, but also the way these objects are to be approached *epistemologically*. We must be careful not to confuse these aspects here.

Firstly, we have ‘one section of it which the soul is compelled to investigate by treating as images the things imitated in the former division’. In other words, here in this lower section are *intelligible objects*, but these are investigated through the means of their images (i.e. *sensible objects*) from the visible region.

Secondly, in the top section of the intelligible region we have ‘no use of the images employed by the other section, relying on ideas [εἰδέναι — *eidesi* or *Forms*] only and progressing systematically through ideas’. Here then, the objects under purview are the intelligible Forms, *investigated in themselves without recourse to their images as sensible objects*.

In this way, we arrive at the following:

Intelligible region:

- (1) *Intelligible Forms or Ideas*: treated in and of themselves
- (2) *Intelligible objects*: investigated through their sensible images or copies

Visible region:

- (3) *Images*: sensible objects
- (4) *Images of Images*: Images of sensible objects — reflections and shadows

⁶⁵⁰ Plato, *Republic*, 510b.

The question naturally arises, what *exactly* is the ontological status of the intelligible objects in section (2) of the line? This leads us to the more difficult problem regarding *mathematicals*, and possibly even the *mathematical intermediates*, within Plato's philosophy.

7.5.2 The Question of Mathematical Intermediates

In terms of the context, and discourse, solely within the *Republic*, Plato presents us with a three-fold ontological distinction, consisting of Forms, Copies (or Images) of Forms, and Copies of Copies of Forms.

We get, then, these three couches, one, that in nature, which, I take it, we would say that God produces [i.e. the Form], or who else?

No one, I think.

And then there was the one which the carpenter made. [i.e. the Copy or Image of the Form]

Yes, he said.

And one which the painter. [i.e. the Copy of the Copy of the Form] Is not that so?

So be it.

The painter, then, the cabinetmaker, and God, there are these three presiding over three kinds of couches.

Yes, three.⁶⁵¹

Here Plato employs the couch as an example of a more general idea, namely, there are *these three* kinds of objects in our experience.⁶⁵² Here Plato does not indicate to us any fourth ontological category. Nor does he appear to explicitly do so anywhere else in the *Republic*.

There are then, at least two possibilities for interpretation. Either, (A) The *Divided Line* should be read in terms of this three-fold ontology that seems to predominate the discussion within the *Republic* (and in particular *Republic* 597b); or (B) The *Divided Line* should be read as rather uniquely introducing a new fourth ontological category, in its section (2).

⁶⁵¹ Plato, *Republic*, 597b. See the larger context in, 595a – 598a.

⁶⁵² That Plato intends this three-fold distinction to be a more general truth about our experience, and not just specific to such things as couches, can be evidenced from the wider context. See, *Republic* 595c – 596b, 'Could you tell me *in general* what imitation is? ... Shall we, then, start the inquiry at this point by our customary procedure? We are in the habit, I take it, of positing a single idea or form in the case of *the various multiplicities to which we give the same name*. ... In the present case, then, *let us take any multiplicity you please*; for example, there are many couches and tables.' Emphases added.

If we take option (A), then we must identify the intelligible objects in section (2) as Forms or Ideas also, along with the objects in section (1). As such, the difference between sections (1) and (2) would be epistemological, and methodological, *not* ontological.

If we take option (B), however, then we would need a new ontological classification for these objects. On the one hand, they would not be sensible particulars, and on the other hand, they would not be fully blown Forms. Many interpreters have suggested a new ontological category of *mathematical intermediates* as filling this role. This was, in fact, one of the standard 19th century approaches to interpreting the *Divided Line*. The objects of section (2) were thought to have been intelligible, yet not themselves Forms. Rather, they were understood as ontologically intermediate between Forms and sensibles. H. Sidgwick and J. Adam were the primary advocates of this view.⁶⁵³ More recently, this interpretation has been argued by A. Wedberg.⁶⁵⁴

This way of reading the *Divided Line*, in fact, can be evidenced as early as Proclus.⁶⁵⁵ Further to this, testimony regarding the doctrine of *mathematical intermediates* in Plato exists as early as Aristotle:

Further, besides sensible things and Forms he [i.e. Plato] says there are objects of mathematics, which occupy an intermediate position, differing from sensible things in being eternal and unchangeable, from Forms in that there are many alike, while the Form itself is in each case unique.

Further, some do not think there is anything substantial besides sensible things, but others think there are eternal substances which are more in number and more real, e.g. Plato posited two kinds of substance — the Forms and the objects of mathematics — as well as a third kind, viz. the substance of sensible bodies.⁶⁵⁶

There are really two issues at stake here. First, is the specific question as to whether section (2) of the *Divided Line* provides an instance of *mathematical intermediates*. Second, is the more general question as to whether Plato maintained, within his philosophy, a doctrine of *mathematical intermediates* at all.

⁶⁵³ See, Sidgwick, H. "On a Passage in Plato, Republic, B vi". *JPh*, ii (1869), pp. 96-103; Adam, J. *The Republic of Plato*. Cambridge, 1963, Appendix I, Book 7, Vol. 2.

⁶⁵⁴ Wedberg, Anders, *Plato's Philosophy of Mathematics*.

⁶⁵⁵ See, Proclus, *A Commentary on the First Book of Euclid's Elements*, 4.14 – 5.10. See also, Boyle, "Plato's Divided Line: Essay I the Problem of Dianoia", pp. 8-9, n. 8.

⁶⁵⁶ Aristotle, *Metaphysics*, 987b14-18; 1028b18-21. For further possible allusions to Plato, see, Aristotle, *Metaphysics*, 1086a12, 1076a19-21.

It is certainly *logically possible* for Plato to have maintained a doctrine of *mathematical intermediates*, without his analogy of the *Divided Line* to have made any reference to them as such. In terms of the two possible options for interpreting the *Divided Line*, that I noted above, it is logically possible to take option (A) — that section (2) contains Forms along with section (1) — whilst maintaining that Plato, elsewhere, posited a fourth ontological category of *mathematical intermediates*.

Regarding the interpretation of the *Divided Line*, then, is option (A) or (B) the more reasonable? I consider that the weight of evidence supports option (A). The two primary factors in this judgement are as follows:

- 1) Plato makes no reference to a fourth ontological category in his discussion in the *Republic* after the *Divided Line*. The later discussion concerning the bed (*Republic* 597b), for example, relies upon the familiar three-fold distinction of Form, sensible particular (which is an image of a Form), and the image of the sensible particular (which is the image of the image of a Form).
- 2) Plato refers to the objects of section (2) of the *Divided Line*, apprehended through understanding (διάνοιαν — *dianoian*), in the same way that he refers to the Forms. He speaks of ‘the square itself’ (τετραγώνου αὐτοῦ — *tetragōnou autou*) and ‘the diagonal itself’ (διαμέτρου αὐτῆς — *diametrou autês*).⁶⁵⁷ This is the very same language he employs regarding the Forms, in the *Phaedo*:

Equality itself [αὐτὸ τὸ ἴσον — *auto to ison*], *beauty itself* [αὐτὸ τὸ καλόν — *auto to kalon*], what *each thing is by itself* [αὐτὸ ἕκαστον ὃ ἑστίν — *auto hekaston ho estin*], reality — do these admit of any change whatever? Or does each thing which is just itself and no more, being uniform when considered by itself alone, remain constantly the same, admitting nowhere of any change whatever? It must remain uniform, Socrates, said Cebes, and immutable.⁶⁵⁸

For these two reasons, I do not consider Plato to be introducing a fourth ontological category of *mathematical intermediates* within the *Divided Line*. Rather, section (2) of the *Divided Line* consists of the same ontological objects as section (1), namely, the Forms. The difference between these two sections is epistemological (or methodological),

⁶⁵⁷ Plato, *Republic*, 510d. This point is noted by both, Boyle, “Plato’s Divided Line: Essay I the Problem of *Dianoia*”, p. 3; and, Karasmanis, “Plato’s Republic: The Line and the Cave”, p. 156.

⁶⁵⁸ Plato, *Phaedo*, 78d-e. Emphases added.

not ontological. In section (2) Forms are investigated through the use of their images (i.e. *sensible objects*). In section (1) Forms are investigated without *any* recourse to their images (i.e. *sensible objects*).

Most contemporary commentators concur with this interpretation, in suggesting that the objects of section (2) are indeed Forms.⁶⁵⁹ However, even within this general framework, interpretations can still vary. For example, Paul Shorey, in the introduction to his translation of the *Republic*, accepts that the objects of section (2) are Forms.⁶⁶⁰ However, he argues that they are a specific group of Forms, called *mathematical objects*, and that these and only these occupy section (2).

Shorey states,

On my interpretation critics have likewise erred by refusing to admit a similar qualification of their too literal acceptance of the image of the divided line. The proportion: ideas are to things as things are to their reflections in mirrors or in water, has only three terms. The fourth term is found in mathematical ideas, which in their use in education and in respect of the method by which the mind deals with them are in some sort intermediate between ideas and things. We thus get our proportion. But in the description of it Plato is careful to distinguish the mathematical ideas only by the method of their treatment in science, not in dialectics, and not as entities of another kind. This raises the presumption that Plato, as usual, knows what he is doing and does not intend to distinguish objectively mathematical ideas *as ideas* from other ideas. I support this presumption by pointing out that in the later and final interpretation of the line Plato names the objective correlates of the mental processes corresponding to three divisions of the line but omits the fourth on the pretext that it would take too long. He names the mathematical attitude of mind or method but does not name its objects as something distinct from ideas or a distinct kind of ideas.⁶⁶¹

In contrast to the traditional 19th century interpreters, Shorey does not wish to understand Plato as holding to a fourth category of *mathematical intermediates*. On the other hand, Shorey understands section (2) as strictly reserved for the *mathematicals*, those objects of which mathematicians treat, which he identifies as Forms.

⁶⁵⁹ See for example, Ross, *Plato's Theory of Ideas*, p. 59-67; Murphy, *The Interpretation of Plato's Republic*, p. 167-168; Joseph, *Knowledge and the Good in Plato's Republic*, p. 49-52; Cherniss, *The Riddle of the Early Academy*, p. 75-78. All cited by, Karasmanis, "Plato's Republic: The Line and the Cave", p. 156, footnote 22, who, in this article, also argues against *mathematical intermediates* in the *Divided Line*. See also, Pritchard, *Plato's Philosophy of Mathematics*, pp. 94-95.

⁶⁶⁰ Shorey, *The Unity of Plato's Thought*, p. 83, 'The "mathematical" numbers then are plainly the abstract, ideal numbers of the philosopher. The numbers of the vulgar are concrete numbered things. There is no trace of a third kind of number.' See also, Shorey, *The Republic*, Vol.2, pp. xx – xxi, footnote e.

⁶⁶¹ Shorey, *The Republic*, Vol.2, p. xxxi.

Are we justified, however, in supposing that Plato wished to limit section (2) to what we may call *mathematicals*, even if these are acknowledged to be Forms? Such an assumption, I submit, is not necessarily guaranteed by the text, although traditionally interpreters have been tempted to extract it from Plato.

We must bear in mind that Plato, in his general *description* of section (2), does not specifically describe it as the exclusive domain of *mathematicals*. Rather, he refers to it in a very general sense, 'treating as images the things imitated in the former division'. This, of course, consists of *all* items imitated in our sense perception — 'the animals about us and all plants and the whole class of objects made by man'. There appears to be no indication here that Plato wishes to limit what is treated in section (2), to the *mathematicals only*. In fact, thus far he seems to suggest that it potentially treats of *all* intelligible objects imaged in our sense perception.

This will be foundational as how to best interpret the next section of the text. Given this *prima facie* reading of *Republic* 510a-b, the interpreter may reasonably analyse the following passage (*Republic* 510c – 511b) as illuminated by this prior text.

Here, Plato further elaborates on what he previously pointed at regarding section (2). He states,

Well, I will try again, said I, for you will better understand after this preamble. For I think you are aware that students of geometry [γεωμετρίας — *geometrias*] and reckoning [λογισμοὺς — *logismous*] and such subjects first postulate the odd and the even and the various figures and three kinds of angles and other things akin to these in each branch of science, regard them as known, and, treating them as absolute assumptions, do not deign to render any further account of them to themselves or others, taking it for granted that they are obvious to everybody. They take their start from these, and pursuing the inquiry from this point on consistently, conclude with that for the investigation of which they set out...

And do you not also know that they further make use of the visible forms and talk about them, though they are not thinking of them but of those things of which they are a likeness, pursuing their inquiry for the sake of the square as such and the diagonal as such, and not for the sake of the image of it which they draw? And so in all cases. The very things which they mould and draw, which have shadows and images of themselves in water, these things they treat in their turn as only images, but what they really seek is to get sight of those realities which can be seen only by the mind...

I understand, said he, that you are speaking of what falls under geometry and the kindred arts.⁶⁶²

A cursory glance of the above passage might lead one to suppose that now Plato limits section (2) to objects dealing with ‘geometry and reckoning’, or more exactly, geometry (γεωμετρίαι — *geômetriai*) and logistic (λογισμοί — *logismoi*, i.e. the practice of the art of calculation).

However, closer inspection reveals that we need not necessarily understand the text in this manner. Plato has Socrates provide *an example*, involving geometry and logistic, in order to help unfold his meaning. We need not assume that the items in the example monopolise the *full and exhaustive* domain of section (2) of the *Divided Line*.

Rather, we should note that Plato carefully qualifies his example by saying ‘geometry and reckoning *and such subjects*’ (καὶ τὰ τοιαῦτα πραγματευόμενοι — *kai ta toiauta pragmateuomenoi* — i.e. ‘and such undertakings/labouring/busying’). Therefore, it is not *merely* geometry and logistic that Plato has in mind here, but *all those practices* that adopt a similar methodology, namely, (i) The use of the method of hypothesis (ὑπόθεσις — *hupothesis*) (*Republic* 510c), (ii) The use of images in our sense perception as a means to investigate the Forms (*Republic* 510d-e).

This is further confirmed when Plato describes the method for acquiring hypotheses in his examples of geometry and logistic. He states that they, ‘first postulate the odd and the even and the various figures and three kinds of angles...’⁶⁶³ Here we observe that ‘the odd and the even’ refers to the hypotheses of logistic, and the ‘various figures and three kinds of angles’ represent the hypotheses of geometry. But Plato further states, ‘first postulate the odd and the even and the various figures and three kinds of angles *and other things akin to these in each branch of science...*’ This last phrase (καὶ ἄλλα τούτων ἀδελφὰ καθ’ ἐκάστην μέθοδον — *kai alla toutôn adelpha kath’ hekastên methodon*), can also be rendered, ‘and other things akin/related/sister to these in each/every *methodological-inquiry*’.

⁶⁶² Plato, *Republic*, 510c – 511b.

⁶⁶³ Plato, *Republic*, 510c.

The scope of Plato's section (2) then, is not necessarily limited to the arts of geometry and logistic, but includes *all* arts, *all* methodological inquiries (μέθοδον — *methodon*) that adopt a similar method (in terms of (i) and (ii) above) to the example cases of geometry and logistic.

This reveals how we should understand the phrase uttered by Socrates' interlocutor in response to his fuller explanation. The interlocutor states, "I understand", said he, "that you are speaking of what falls under geometry *and the kindred arts*." (καὶ ταῖς ταύτης ἀδελφαῖς τέχναις — *kai tais tautês adelphais technais*). This last phrase may also be rendered 'and the kindred/related/sister *arts/skills/crafts*'. In other words, the interlocutor acknowledges that Socrates certainly refers to what occurs in the practice of geometry. However, he *also* indicates what occurs in the practice of *all* methodological-inquiries (μέθοδον — *methodon*) that employ the same 'method of hypothesis'. This means that the objects of section (2) are not necessarily *limited* to the objects of which mathematicians treat, such as *arithmoi*, or lines and shapes. Rather, the objects of section (2) may extend to *any and every* intelligible object used, not only by geometry and logistic but also by *all* disciplines of methodological-inquiry (μέθοδον — *methodon*), that employ sensible images as a *means* for investigating the Forms which they image.⁶⁶⁴

If this analysis is correct, then we may observe, *contra Shorey*, that section (2) of the *Divided Line* need not be limited to mathematics *only*.

The further question as to whether Plato held a doctrine of *mathematical intermediates* in general, furnishes us with additional difficulties. At least two potential objections present themselves:

- 1) Despite the fact that Aristotle testifies to Plato as holding a doctrine of *mathematical intermediates*, there exists no dialogue in which Plato actually speaks of

⁶⁶⁴ What these further disciplines could be, Plato does not specifically mention in the text. One, of course, supposes that all of the five mathematical sciences, including astronomy and harmonics (not just arithmetic (including logistic), along with plane and solid geometry) would involve something of this method. These of course are still *mathematicals* in some sense. Perhaps ethical and aesthetic objects would also have been included within section (2) of the *Divided Line*. Without any further examples from the dialogues, the best we can do here is merely state that Plato's language does not limit section (2) to mathematical objects only, but leaves open the possibility of non-mathematical objects also.

mathematical intermediates as such. In no dialogue does Plato employ the terms attributed to him by Aristotle, of 'ideal numbers', 'mathematical numbers', 'intermediates', or 'objects of mathematics'.⁶⁶⁵

- 2) In no dialogue does Plato unequivocally postulate the ideal instances of geometrical ideas as distinguished from the Forms.⁶⁶⁶

These objections however, are not conclusive. A doctrine of *mathematical intermediates* may be perhaps derived from the dialogues, given the following considerations:

- 1) In the *Republic*⁶⁶⁷ and *Philebus*,⁶⁶⁸ Plato speaks of *arithmoi* (numbers) that are collections of indivisible units.
- 2) In the *Phaedo*⁶⁶⁹, Plato speaks of Forms of numbers as being partless, indivisible unities.

⁶⁶⁵ See, Boyle, "Plato's Divided Line: Essay I the Problem of *Dianoia*", p. 4; Also, Wedberg, *Plato's Philosophy of Mathematics*, p. 12. Wedberg, although acknowledging this point, nevertheless considers Plato to have maintained a doctrine of *mathematical intermediates*.

⁶⁶⁶ See, Wedberg, *Plato's Philosophy of Mathematics*, p. 12. Once again, Wedberg notes this point whilst still upholding a doctrine of *mathematical intermediates* in Plato's philosophy.

⁶⁶⁷ Plato, *Republic*, 525c – 526a, 'Moreover, it strikes me, now that it has been mentioned, how sophisticated the subject of calculation is and in how many ways it is useful for our purposes, provided that one practices it for the sake of knowing rather than trading.... It leads the soul forcibly upward and compels it to discuss the numbers [*arithmoi*] themselves, never permitting anyone to propose for discussion numbers [*arithmoi*] attached to visible or tangible bodies. You know what those who are clever in these matters are like: If, in the course of the argument, someone tries to divide the one itself, they laugh and won't permit it. If you divide it, they multiply it, taking care that one thing never be found to be many parts rather than one. ... what do you think would happen, Glaucon, if someone were to ask them: "What kind of numbers are you talking about, in which the one is as you assume it to be, each one equal to every other, without the least difference and containing no internal parts?" I think they'd answer that they are talking about those numbers that can be grasped only in thought and can't be dealt with in any other way.' Grube translation (rev. Reeve, from the Cooper ed.)

⁶⁶⁸ Plato, *Philebus*, 56, 'Don't we have to agree, first, that the arithmetic of the many is one thing, and the philosophers' arithmetic is quite another?

'How could one distinguish these two kinds of arithmetic?

'The difference is by no means small, Protarchus. First there are those who compute sums of quite unequal units, such as two armies or two herds of cattle, regardless whether they are tiny or huge. But then there are the others who would not follow their example, unless it were guaranteed that none of those infinitely many units differed in the least from any of the others.' Frede translation (from the Cooper ed.)

⁶⁶⁹ Plato, *Phaedo*, 101c, 'And you would loudly exclaim that you do not know how else each thing can come to be except by sharing in the particular reality in which it shares, and in these cases you do not know of any other cause of becoming two except by sharing in Twoness, and that the things that are to be two must share in this, as that which is to be one must share in Oneness, and you would dismiss these additions and divisions and other such subtleties, and leave them to those wiser than yourself to answer.' Grube translation (from the Cooper ed.)

- 3) Likewise, in the *Phaedo*,⁶⁷⁰ Plato speaks of all Forms as being partless, indivisible unities.
- 4) Therefore, the sorts of *arithmoi* (numbers) that are *collections* of pure units must be different kinds of intelligible objects to those Forms of numbers which are partless, indivisible unities.

This suggests to us, that implicit within the dialogues themselves, may be a distinction between mathematical-numbers (which can be divided into their composite units), and Forms-of-numbers (which are indivisible). Both would be objects of intellection, not objects of sense experience.

The objection was noted above that Plato does not adopt the term '*mathematical intermediates*' within the dialogues. To this we may suggest the following two responses. Firstly, as I have just outlined, Plato need not have specifically used the terminology of *mathematical intermediates* in order for the concept nevertheless to be clearly implicit in the dialogues. Secondly, the testimony of Aristotle need not be referring to the written dialogues. Aristotle may very well have been reporting on the unwritten doctrines, the oral teachings, of Plato, as he does on many other occasions.⁶⁷¹

In light of these two considerations, I think it would be pertinent to conclude that it is at least possible, if not rather likely, that Plato did teach a doctrine of *mathematical*

⁶⁷⁰ Plato, *Phaedo*, 78c-d, "Then those things which always remain uniform and invariable are most likely to be uncompounded ... What of reality itself, whose being we gave account of in questioning and answering? Is it always uniform and immutable, or does it suffer change? Equality itself, beauty itself, what each thing is by itself, reality – do these admit of any change whatever? Or does each thing which is just itself and no more, being uniform when considered by itself alone, remain constantly the same, admitting nowhere of any change whatever? It must remain uniform, Socrates, said Cebes, and immutable." Woodhead translation.

⁶⁷¹ For a list of such references to Aristotle's reports on Plato's unwritten doctrines, see, Kramer, *Plato and the Foundations of Metaphysics*, Appendix 3, pp. 203-217. Cherniss, of course, in rejecting Aristotle as a reliable witness to Plato's philosophy, argued that Aristotle's testimony about Platonic *mathematical intermediates* should be rejected outright. See, Cherniss, H. *The Riddle of the Early Academy*, pp. 75-78. He states, p. 35, 'It has been proved over and over again that Plato does not anywhere in his writings recognise mathematical numbers and figures as entities separate from sensibles on the one hand and ideas on the other.' For a criticism of Cherniss' method however, see, Kramer, *Plato and the Foundations of Metaphysics*, pp. 34-38. Gulley, on the other hand, interprets a further comment by Aristotle, as implying that, 'the doctrine of "intermediate" mathematical objects, as well as the doctrine that Forms are numbers, is a late and not an original feature of Plato's metaphysical theory.' See, Gulley, Norman, *Plato's Theory of Knowledge*, p. 199, footnote 21. The Aristotelian statement in question is, Aristotle, *Metaphysics*, 1078b9-12, 'Now, regarding the Ideas, we must first examine the ideal theory by itself, not connecting it in any way

intermediates, even if such a doctrine is not contained in the analogy of the *Divided Line* itself.

7.6 Liberation from the Cave: *Republic*

Perhaps the most well known passage in the Platonic dialogues is the *Cave*, in *Republic* 514a – 519b. The *Cave* of course, is not so much a myth, as in fact an allegory. The *Cave* bears important similarities to the ascent to beauty of the *Symposium*. For the *Cave*, also, represents an ascent story, the ascent of the prisoner, bound in chains and darkness, upwards through to the light of day in the world outside the cave.

The allegory contains two regions, just as with the *Divided Line*. There exists the region of the cave itself, and the region above and out of the cave. Given the *Divided Line*'s two-fold division we might expect the *Cave* allegory to operate on a similar basis. Indeed, this is what we find in Plato's own explanation.

This image then, dear Glaucon, we must apply as a whole to all that has been said, likening the region revealed through sight to the habitation of the prison, and the light of the fire in it to the power of the sun. And if you assume that the ascent and the contemplation of the things above is the soul's ascension to the intelligible region, you will not miss my surmise...⁶⁷²

So the cave region represents the region of the visible, and outside the cave is the region of the intelligible. Thus far it is a straightforward procedure to map the *Divided Line* and the *Cave* together. However, when we come to mapping together the various sub-regions of the *Divided Line* it is not quite so straightforward. Indeed, I suggest that it would be wrongheaded to search for a direct mapping in this regard. For example, the *Cave* allegory has the sun represent the Good. Yet the *Divided Line* does not specifically deal with the place and role of the Good.⁶⁷³ Rather than pursue an exact *one-to-one match* of the allegorical elements in the two regions, I suggest we merely acknowledge the *parallel* of the two regions. We should appreciate the two allegories in their own right, as each speaking in their own unique way about the same philosophical situation. This

with the nature of numbers, but treating it in the form in which it was originally understood by those who first maintained the existence of Ideas.'

⁶⁷² Plato, *Republic*, 517a-b.

⁶⁷³ At least, not under the interpretation I have proposed.

perhaps is also the fairest way of treating allegories — i.e. as *allegories*, and not as formulae that can be isomorphically matched in any *rigorous* fashion.

What primarily interests us with regard to the *Cave* allegory, is the place that the mathematical sciences occupy in the allegory. In the text itself Plato remains silent regarding this. Yet, on the basis of the above argument I have raised, about the role of mathematics as an initial *katharsis* to apprehend true Being, I believe we can interpolate where mathematics belongs in the *Cave* allegory.

Given that the region of the cave is the visible region (the lower region in the *Divided Line*), and that mathematical study is located in the upper intelligible region of the *Divided Line*, then we know that mathematics cannot be located in the cave itself. Above and outside the cave is the region of Being, where there are *real* men, the heavens with the moon (i.e. the Forms), all having their source in the one sun (i.e. the Good). This is where the soul must ascend to, as indicated in the *Symposium*.

I propose then, that mathematics is what drags us out of the cave into the upper world. Mathematics forms the upward path of ascent, from the dark world of the cave, to the illuminated world of true Being.

Plato has Socrates speak of this process in the following way,

And if, said I, someone should drag him thence by force up the ascent which is rough and steep, and not let him go before he had drawn him out into the light of the sun...⁶⁷⁴

Mathematics is that instructor that must drag us up, and out of the cave, into the pure world illuminated by the Good.

It is the shock of this sudden exposure to the sun's light (the Good), which allows the soul to initially only make out,

The shadows and, after that, the likenesses or reflections in water of men and other things...⁶⁷⁵

In other words, the training of the mathematical ascent at first only allows one to see the real things (true Being — the Forms) as if images in pools of water. Only after a certain

⁶⁷⁴ Plato, *Republic*, 515e.

⁶⁷⁵ Plato, *Republic*, 516a.

period of time is the soul acclimatised under the illumination of the sun, thence to observe,

... the things themselves, and from these he would go on to contemplate the appearances in the heavens and heaven itself, more easily by night, looking at the light of the stars and the moon...⁶⁷⁶

This comports well with the description of the mathematical sciences with regard to the education syllabus. There Plato has Socrates state,

This, at any rate, said I, no one will maintain in dispute against us, that there is any other way of inquiry that attempts systematically and in all cases to determine what each thing really is [*i.e. dialectic or philosophy itself*]. But all the other arts have for their object the opinions and desires of men or are wholly concerned with generation and composition or with the service and tendance of the things that grow and are put together, while the remnant which we said did in some sort lay hold on reality — geometry and the studies that accompany it — are, as we see, dreaming about being...⁶⁷⁷

As we gaze upon the images in the water, in the world of the intelligible, we are in a sense daydreaming. We dream and imagine Being in itself, which when we fully awaken, and arouse reason within us, we may see unhindered, revealed to us by the glory of the sun — that Good beyond Being.

7.7 The *Macrocosm* – *Microcosm* Mediation

In the *Republic*, Plato suggests to us one application of the *macrocosm* – *microcosm* theme. In the discussion with Adimantus concerning *justice*, Plato has Socrates indicate that rather than merely attempting to discern justice in the individual soul, it would be easier if they first examined justice writ large, in the state.

The inquiry we are undertaking is no easy one but calls for keen vision, as it seems to me. So, since we are not clever persons, I think we should employ the method of search that we should use if we, with not very keen vision, were bidden to read small letters from a distance, and then someone had observed that these same letters exist elsewhere larger and on a larger surface. We should have accounted it a godsend, I fancy, to be allowed to read those letters first, and then examine the smaller, if they are the same.

Quite so, said Adimantus, but what analogy to this do you detect in the inquiry about justice?

⁶⁷⁶ Plato, *Republic*, 516a-b.

⁶⁷⁷ Plato, *Republic*, 533b-c.

I will tell you, I said. There is a justice of one man, we say, and, I suppose, also of an entire city?

Assuredly, said he.

Is not the city larger than the man?

It is larger, he said.

Then, perhaps, there would be more justice in the larger object, and more easy to apprehend. If it please you, then, let us first look for its quality in the states, and then only examine it also in the individual, looking for the likeness of the greater in the form of the less.

I think that is a good suggestion, he said.⁶⁷⁸

Here, in other words, Socrates declares that the state is a macrocosm of the soul, or respectively, that the soul is a microcosm of the state. They both enter into the *macrocosm – microcosm* relationship, with respect to the pivotal notion of justice.

In this chapter, along with Chapter Six, I have suggested a similar idea with regard to the *Being – Becoming* relationship. I argued in Chapters Three and Four, that this was a philosophical transformation of the Greek Apollonian – Dionysian dual religiosity. Just as the Orphics attempted to synthesise this duality, similarly Plato endeavours to synthesise Being and Becoming. But this synthesis, I propose, Plato explicates in terms of the *macrocosm – microcosm* framework.

At the macrocosmic level, mathematics functions as a medium, *ontologically* bridging the gap between *cosmic* Being and Becoming. This is complemented at the level of the individual soul, in that it functions as the microcosmic focal point. I have here argued that it is through mathematics that Plato bridges the *epistemological* gap between our opinion concerning Becoming and our knowledge concerning Being.

⁶⁷⁸ Plato, *Republic*, 368c – 369a.

Chapter Eight:

Epilogue

This is the end of the matter; all hath been heard.

— *Ecclesiastes*, 12:13a (ASV)

8.1 The Platonic Vision

In this thesis I have interpreted Plato within the Orphic-mythical context of ancient Greece. I do not mean to imply, however, that Plato means little except in his own context, or is thus without relevance to our own contemporary situation. In fact quite the reverse of this is the case. Plato was pioneering, in his own day, what would become the starting point of western rationalism, and western philosophy. He championed, and firmly established, the fundamental significance of abstract theoretical thought within our western way of life.

Plato played a key role in the intellectual shift away from thinking in the concrete, historically contingent, time-bound terms of *actors making actions* (i.e. the Homeric way of life). He stressed the ideal of purifying oneself from the attachment to Becoming, the attachment to what is fleeting and changing in one's experience, and to focus instead on Being, on the timeless Forms. Only these, he maintained, can provide a rational coherence to our experience. This represents the new use of language, the new use of thought, and indeed new *worldview*, that was first pioneered by the Presocratic philosophers, as discussed in Chapter Two.

The path that this new way of life, this new enterprise of philosophy, took within the western tradition subsequent to Plato, is in some sense a continuation of his pioneering vision. The exact nature of such disciplines as metaphysics, epistemology, and ethics, have of course radically evolved from Plato's own particular conception. Nevertheless, all these disciplines owe a primary debt to Plato's own inspired efforts at theoretical, rational, systemisation. He stood, both in terms of chronology and in terms of genius, at the very foundation of the western philosophical way of life. He championed the initial visionary direction from which western philosophy then proceeded to steer its course.

This is not to suggest that the *system* of Platonism is the *sine qua non* of rational discourse today. It is not so much the sort of *answer* that Plato declared which is important, but rather the whole enterprise of asking *theoretical* questions itself. Even for those who would resolutely reject the Platonic *system*, the radical indebtedness to Plato's

initial vision is still apparent. Richard Rorty encapsulates this well, where he concludes regarding his own (post-modern) position concerning the enterprise of philosophy today:

... the point of edifying philosophy is to keep the conversation going rather than to find objective truth... The fact that we can continue the conversation Plato began without discussing the topics Plato wanted discussed, illustrates the difference between treating philosophy as a choice in a conversation and treating it as a subject, a *Fach*, a field of professional inquiry. The conversation Plato began has been enlarged by more voices than Plato would have dreamed possible, and thus by topics he knew nothing of.⁶⁷⁹

It was this pioneering inspiration of Plato, towards a *theoretical* vision of the world, that still speaks in whatever subsequent cultural and historical context it now finds itself.

8.2 Plato and Myth

Having located Plato, then, in the context of an Orphic-philosophical religiosity, I need now to make some final comments regarding the legitimate place of myth within the Platonic philosophy.

Platonic myth and allegory, I suggest, work as *symbols* that invite us to push on, beyond and through them, into an understanding of what Plato saw as the necessary features of rational cognition.⁶⁸⁰ Plato prepares and summons us to reflect upon what it means to be rational, what it means to involve oneself in theoretical cognition. Within the rationalist worldview, above all, this means to develop that aspect of human cognition that connects us to Being — namely, the faculty of theoretical thought itself — the *rational soul*.

I propose that Plato offers us a *philosophically transformed mythology*. Plato is very critical of the older oral-mythical way of life, embodied in the poets such as Homer and Hesiod. He goes so far as to banish them from his ideal polis.⁶⁸¹ Yet, as I have demonstrated in this thesis, he does himself speak mythically. But his myths are not the

⁶⁷⁹ Rorty, Richard, *Philosophy and the Mirror of Nature*, pp. 377, 391.

⁶⁸⁰ A symbolic understanding of the nature of myth has been argued, most particularly, by Ernst Cassirer. He developed an eclectic, Kantian, approach to myth, in which myth functions as a 'symbolic form' of expression alongside language, and science. The contrast is between a pure expression, or an image world, to the derivative experience, or factual world of experience. See, Cassirer, Ernst, *An Essay on Man; Language and Myth; The philosophy of Symbolic Forms*, vol.2: "Mythical Thought". See also the discussion in, Kirk, G.S. *The Nature of Greek Myths*, pp. 79-86.

myths of Homer and Hesiod. Rather, they are the myths of the Orphic mystery religions. The ritual of *katharsis* and the cosmic theogony are drawn, not from Homer, but from Orpheus. In terms of the *dramatic* use of mythology then, Plato places himself in the Orphic tradition, and remains strongly opposed to the Homeric and Hesiodic tradition. But why is this the case? Why should Plato make use of these Orphic-style myths? The reason I suggest is two-fold.

Firstly, *historically* Plato himself stands in a cultural tradition that has its roots in Pythagoreanism and Orphism. Secondly, *philosophically* Plato employs the Orphic myths by retelling them in a new context, in order to speak concerning *Becoming*,⁶⁸² and in order to communicate by means of a *written discourse*.

We must bear in mind that Plato is situated on the borderlands between the older oral-mythical way of life, and the newly arisen literate-philosophical way of life. He champions this new cultural form from his vantage point at its inception. Today, we who live in the west at the former half of the 21st century, have inherited almost two and a half thousand years of cultural development within this literate-philosophical way of life championed by Plato. In part, our problem is about linguistic forms. Why, we might inquire, did Plato not compose his dialogues in a prosaic, non-mythical form? Why did he not clearly and systematically set out the elements of his philosophical system in his dialogues, as most later great philosophical systematisers of the west have done in their writings?⁶⁸³ The answer to this, I believe, is also two-fold.

Firstly, as I argued in Chapter Two, the linguistic tools that the newly arisen literate-philosophical worldview needed in order to express the cognitive categories of abstract timeless essences, were only then in the early stages of development. Plato himself does not endeavour to create an exhaustive technical vocabulary. By and large he relies upon the terminological innovations of the Presocratics. His own terminology is very fluid. Consider the variety of expressions he employs for one of his key concepts,

⁶⁸¹ Plato, *Republic*, 398a, 568b, 595, 605b, 607a.

⁶⁸² See my argument regarding this point in Chapter Six.

⁶⁸³ Certainly, there are important exceptions to this general trend in western philosophy. Aside from the dialogues (mimicking the Platonic style it would seem) occasionally employed by Hume and Berkeley for example, many Existentialist thinkers, in particular, have purposely written in a more storied, or poetic form, in direct contrast to the western trend of rational systematising.

the relationship between a sensible and a Form. In the *Republic* alone we have: *agalma* (image of — 517d), *apeikazein* (to liken oneself to — 511a), *aphomoioun* (made like — 500c, 517b), *apodidonai* (to reproduce in — 421c), *blepein* (to look towards — 421b, 500b, 515d-e, 529b-c), *dokounta* (semblance of — 505d), *eidolon* (image of — 516a, 520c, 534c, 598b-599a), *eikon* (a semblance of — 402c, 510b-511a, 517a-d), *eoikenai* (to be likened to — 488a, 510a-d, 515a), *epeigein* (to drive towards — 517c), *homoios* (similar to — 435b, 472d, 506e, 585c, 613b), *homoiotēs* (likeness — 369a, 401d), *homoion* (likening to — 498e, 510a, 613b), *homoion* (a likeness of — 454c), *mimeisthai* (to imitate — 500c, 598b, 599a, 602a-c), *mimema* (an imitation — 382b, 599b), *mimesis* (imitation — 598b, 602b), *oios* (like — 472b-473a, 484c, 597a, 601d), *paradeigma* (a pattern for — 409b-d, 472c-e, 500e, 540a, 617d-618a), *phantazetai* (to be a simulacrum of — 510a, 516b, 532c, 599a), *proschresthai* (to approach in likeness to — 505a, 510d), *proseoikenai* (to resemble — 430a), *stochazomai* (to shoot at — 462a), *tupos* (pattern for — 443c, 559a).⁶⁸⁴ Such a range of terminology suggests that rather than pinning down a single key term, Plato instead paints a broad landscape of semantic meaning for us. This is a marked contrast to Aristotle, who developed quite a sophisticated technical vocabulary, one that remained a standard throughout much of medieval and early modern philosophy. Today we possess a finely honed rational philosophical vocabulary at our fingertips, and an academic community ready and willing to understand what we say using this vocabulary. Such was not the case for Plato. It would be grossly anachronistic to expect him to express himself as an enlightenment philosopher, or even as an Aristotle writing only a generation later.

Plato would have good reason to resort to the images and language which were then available to him, and which he could philosophically subvert whilst still remaining intelligible to his audience.

Secondly, it is likely that Plato reserved an *oral* dialectical philosophy for his students, over and above the *written* dialogues we now possess.

⁶⁸⁴ I owe this seemingly exhaustive list to Tom Bestor, in his *Study Guide on Plato's 'Two Worlds' Dialogues*, p. 45.

We know in the case of Aristotle, that he *wrote* works both for the general public (his so called exoteric works) and for his philosophical students (the so called esoteric works).⁶⁸⁵ Through the vicissitudes of history, by and large only his esoteric works have survived for us today.⁶⁸⁶ What we do know of his exoteric works, however, indicates that they were often cast in dialogue form, similar perhaps to Plato. A precedent for such an exoteric – esoteric framework, then, clearly exists within one of Plato's own younger contemporaries.

Further to this, however, are the ancient reports on the *unwritten doctrines* of Plato.⁶⁸⁷ As I noted in Chapters Two and Six, the Tübingen school of Platonic interpretation, argues that Plato purposely maintained a more direct *oral* dialectical philosophy, due to what he saw as the philosophical limitations of a *written* discourse (*Phaedrus* 274 – 278).⁶⁸⁸

It is most likely, then, that Plato reserved some clearer and non-allegoric *esoteric* teaching for his disciples at the academy, to which the general (philosophically uninitiated) public were not usually privy.⁶⁸⁹

Indeed, Plato hints at such in the *Republic*, where Glaucon presses Socrates to explain further the nature of dialectic or philosophy, that discipline which one can only really undertake after the initial *katharsis* of the mathematical sciences.

[Glaucon:] Tell me, then, what is the nature of this faculty of dialectic? Into what divisions does it fall? And what are its ways? For it is these, it seems, that would bring us to the place where we may, so to speak, rest on the road and then come to the end of our journeying.

⁶⁸⁵ This division of the Aristotelian corpus is based upon the testimony of Aulus Gellius, *Noctes atticae* [*Attic Nights*], XX:5. Gellius was a Roman writer and lawyer, who flourished in the 2nd c. AD. He speaks of the *exoteric* writings (intended for the general public) and the *acroatic* writings (intended for those versed in the phraseology and modes of thought of the peripatetic school) of Aristotle. See also, Augustine, *Contra Academicus*, for an ancient historiography of the Academy using the *exoteric* – *esoteric* framework.

⁶⁸⁶ Strabo (c. 63 BC – AD 24) *Geographia*, XIII:1:54, recounts the details of how the library of Aristotle's works was passed on through various hands. Plutarch (c. AD 45 – 125), *Sulla* 26, recounts the same story, with a few additional details.

⁶⁸⁷ For a list of these ancient reports regarding Plato's unwritten doctrines, see, Kramer, *Plato and the Foundations of Metaphysics*, appendix 3, pp. 203–217.

⁶⁸⁸ See, for example, Kramer, *Plato and the Foundations of Metaphysics*; Also, Szlezak, *Reading Plato*.

⁶⁸⁹ Some have even argued that Plato's purpose was in fact *never* to express himself in a *direct* telling, but rather only ever to communicate *indirectly* as an artist. See, Sharp, S. *Platonic Love and the One Unforgivable Sin*. The interpretation of the Tübingen school, however, would appear to reject this way of reading Plato (i.e. that he was always an *indirect* communicator) as a later, Schleiermacher inspired, innovation. See, Kramer, *Plato and the Foundations of Metaphysics*, pp. 3–74.

[Socrates:] You will not be able, dear Glaucon, to follow me further, though on my part there will be no lack of good will. And, if I could, I would show you, no longer an image and symbol of my meaning, but the very truth, as it appears to me... And may we not also declare that nothing less than the power of dialectic could reveal this, and that only to one experienced in the studies we have described, and that the thing is in no other wise possible?⁶⁹⁰

Plato here suggests that a full and complete understanding of what philosophy can reveal to us is simply not possible, *unless* we have purified ourselves through mathematics, and taken upon ourselves the pure discipline of philosophy.

It is likely then, that Plato wrote in a mythic, symbolic, or allegorical fashion in his dialogues, as these may have been potentially read by those who were not fully purified and prepared for the esoteric dialectic of the academy.

Plato, I suggest, employs Orphic-style mythology, and allegory, in order to communicate his philosophy to a philosophically uninitiated (i.e. non-purified) reading audience. This comports well with his description of mathematical *katharsis* as an initiation. Only those who have actually been ritually (i.e. mathematically) cleansed may receive the unveiled revelation of dialectic philosophy.

This perspective may encourage us to read Plato, in his eschatological myths, as being concerned not so much with an afterlife *per se*, but rather as adopting and transforming these Orphic mythologies in order to communicate symbolically a concern that is *epistemological*, instead of *eschatological*. If this were the case, then the ideal of a comprehensive and exhaustive rational systematicity would be his ultimate focus. For humans this is only a postulated ideal, the Divine *nous* (mind). It speaks of something beyond, or transcendent of the finite human condition. This drives Plato to the language of the Orphic myths, specifically those concerning the afterlife, where humans are translated to the Divine. This rational ideal could only be effectively communicated by breaking down the subject – object differentiation, i.e. by uniting with the Divine mind (i.e. exhaustive rational systematicity).

The dialogue *Meno* bears out the interpretation that, for Plato, exhaustive rational systematicity functions as a prior ideal to embodied human understanding or intelligibility. Meno proposes an epistemic paradox to Socrates, ‘that a man cannot try to

⁶⁹⁰ Plato, *Republic*, 532d – 533a.

discover either what he knows or what he does not know?’⁶⁹¹ In response to this Plato develops his theory of *Recollection*, discussed previously in Chapter Two. This theory is also told in terms of an Orphic style myth. The soul had its origin from the world of the Forms. There it possessed exhaustive rational comprehension. What appears to be learning is really only a process of recollecting what was already known.

Plato has Socrates specifically refer to the ‘truths of religion’, to ‘priests and prophetesses’, and to Pindar, in order to account for his theory of recollection. Through all of these authorities, Orpheus looms large in the background. He states,

I have heard from men and women who understand the truths of religion... Those who tell it are priests and prophetesses... Pindar speaks of it too, and many another of the poets who are divinely inspired... They say that the soul of man is immortal. At one time it comes to an end — that which is called death — and at another born again, but is never finally exterminated.⁶⁹²

Plato then has Socrates even continue by quoting Pindar.⁶⁹³

Plato couches this Orphic mythical understanding in the etymology of the Greek term for *truth* — ἀληθεία — *alêthia*. ‘*Alêthia*’ is a compound of the prefix *a-* which is a negation, and the term *lêthê* which means forgetfulness. ‘*Alêthia*’ then, literally means *not forgetting*, or an *unforgetting*. *Lêthê*, mythically, was the name of the river that flowed through Hades. Souls of the dead were required to drink from this in order to forget their earthly lives, prior to being reincarnated. Plato explicitly refers to this in the *Orphic Myth of Er* in the *Republic*.

...they all [i.e. all the souls] journeyed to the Plain of Oblivion, through a terrible and stifling heat, for it was bare of trees and all plants, and there they camped at eventide by the river of Forgetfulness, whose waters no vessel can contain. They were all required to drink a measure of the water, and those who were not saved by their good sense drank more than their measure, and each one as he drank forgot all things.⁶⁹⁴

⁶⁹¹ Plato, *Meno*, 80e.

⁶⁹² Plato, *Meno*, 81a-b.

⁶⁹³ The quotation is from Pindar, *Dirges, frag.* 133, ‘But as for those from whom Persephone shall exact the penalty of the primal woe, in the ninth year she gives up again their souls to the sunlight in the world above. From these come noble knights and men swift in strength and highest in wisdom, and for all time to come men call them pure heroes.’ In, Cornford, *Greek Religious Thought*. p. 64.

⁶⁹⁴ Plato, *Republic*, 621a. *Lêthê* is also mentioned in, Pausanias 9.39.8; Virgil, *Aeneid* 6.703-715; Ovid, *Metamorphoses* 11.602-604.

Knowing what is *true* (*alêthia*) for Plato, is therefore unequivocally based on the Orphic myth of *lêthê*. To know *truth* we must *recollect*, or *unforget* (*a-lêthê*), and realise that we have always known.

This story may also be brought into connection with the *Phaedo*. It is because of the postulated ideal of an exhaustive rational systematicity as the Divine, that the finite efforts at human understanding have a context in which to be intelligible. It is not so much that the soul has been incarnated, but rather that the soul can only *rationally* operate in a context of Being (i.e. timeless abstract categories of cognition). The soul is *epistemically* corrupted by the incarnate sense experience of actors making actions, which amounts to the oral-mythical (i.e. Homeric) way of life.

Furthermore, Plato constantly issues guarded comments regarding how his myths should be taken. After the extended story of the afterlife in the *Phaedo*, Plato has Socrates state,

Of course, no reasonable man ought to insist that the facts are exactly as I have described them. But that either this or something very like it is a true account of our souls and their future habitations — since we have clear evidence that the soul is immortal — this, I think, is both a reasonable contention and a belief worth risking, for the risk is a noble one. We should use such accounts to inspire ourselves with confidence, and that is why I have already drawn out my tale so long.⁶⁹⁵

Here, on one hand, Plato fully allows that a reasonable man may bring doubt to the myth he has told. Yet, on the other hand, he wants to allow that ‘something very like it’ is a true account. But to what end? In what way is this *true account* claim qualified? It is by its *use* to bring confidence when facing death that this myth speaks to us. The myth functions primarily within the dramatic context of the dialogue. As Socrates calmly⁶⁹⁶ faced his own death, he could do so with confidence, knowing that this was the crowning achievement of his philosophical life. He would now be finally purged of all the distractions that the body brings, and be able to undertake a purely intellectual beatific vision of Being in itself.

⁶⁹⁵ Plato, *Phaedo*, 114d.

⁶⁹⁶ Plato portrays Socrates as facing his death both *calmly* and *rationally*, not inflamed by what he would consider the *lesser* and *baser emotional* parts of the soul.

This eschatological myth fits into the larger *Socratic mythology* of Plato, told in the *Phaedo*. Socrates, the *philosophical hero*, was intended to be *harm*ed by the Athenian polis when they put him to death. But paradoxically, the tables were turned in that his death functioned as the *telos* or fulfilment of his philosophical quest. The afterlife myth helps explain part of this larger *Socratic hero* mythology.

In the dialogue *Euthyphro*, Socrates reacts negatively to elements of the traditional Olympic mythology told to him by Euthyphro,

There, Euthyphro, you have the reason why the charge is brought against me [*i.e. the charge of impiety*]. It is because, whenever people tell such stories about the gods, I am prone to take it ill, and, so it seems, that is why they will maintain that I am sinful.⁶⁹⁷

Yet in *Gorgias*, Socrates expounds various elements of the traditional Olympic mythology. Ostensibly he speaks of them in very glowing terms,

Give ear then, as they say, to a very fine story, which you, I suppose, will consider fiction, but I consider fact, for what I am going to tell you I shall recount as the actual truth. As Homer says ... [Socrates goes on to tell the myth]

This is what I have heard, Callicles, and I believe it to be true...⁶⁹⁸

Not only does Plato have Socrates appear to provide strong credence to the traditional Olympic mythology, but he actually has Socrates appeal authoritatively to *Homer*! Given the strong indictment against Homer and the traditional poets in the *Republic*, as previously noted, how is it that Plato has Socrates seem to appeal *approvingly* to them here?

I suggest that we should interpret Plato's intention here in the *Gorgias* as ironic. Dramatically, Socrates is debating some arch-sophists such as Callicles and Gorgias. They, no doubt, would be equally dismissive of the traditional Homeric mythology as Plato is in the *Republic*, but for different reasons. Plato has Socrates argue to these sophists that their own accounts of how we should live are actually no better than these Homeric myths. In fact they are far worse. Plato then, is making a critical insult of the sophistic ethic. Compared to Homer (who is bad enough according to the *Republic*), these sophists, ironically, make Homer look good! Plato has Socrates state,

⁶⁹⁷ Plato, *Euthyphro*, 6a.

⁶⁹⁸ Plato, *Gorgias*, 523a, 524a.

Now perhaps all this seems to you like an old wife's tale and you despise it, and there would be nothing strange in despising it if our searches could discover anywhere a better and truer account, but as it is you see that you three, who are the wisest Greeks of the day, you and Polus and Gorgias, cannot demonstrate that we should live any other life than this, which is plainly of benefit also in the other world.⁶⁹⁹

Here we discover a prime example of the harsh attack of Socratic irony. Socrates alone is wise, because he knows that he is ignorant. These sophists, who boast of being the wisest men in Greece, cannot offer an ethic any better than Homer.

The Homeric myth, and Homeric way of life, are in fact rejected by Plato. In their place, he offers his own Orphic-philosophical way of life as the means to true wisdom.

We see then, that not only may Plato's philosophical system itself be viewed as a grand philosophical transformation of Orphic religiosity, but also, Plato purposely adopted a mythic framework in which to cast his Orphic-philosophy, in order to communicate via a *written discourse* to a potentially philosophically uninitiated readership.

8.3 Concluding Remarks

In this thesis, I have argued that the advent of both literacy and Orphism provided a significant integral influence upon the role that mathematics played within Plato's own philosophy. The themes of macrocosm (the cosmos) and microcosm (the soul), so consequential in later Neoplatonic thought, are already anticipated here in Plato. But it was upon the basis of Orphic mythology that Plato developed these themes. Mathematics acts as the *medium* that bridges the gap between Being and Becoming, both ontologically for the cosmos itself (macrocosm), and epistemologically for the soul (microcosm). At the macrocosmic level, it is through geometric forms that Being is imaged into the world of Becoming. At the microcosmic level, the epistemological gap that the soul faces, between its *opinion* concerning Becoming, and its *knowledge* concerning Being, is mediated through the *understanding* of the mathematical sciences.

⁶⁹⁹ Plato, *Gorgias*, 527a.

Plato did not merely uncritically adopt Orphism however. Rather, he philosophically transformed the Orphic myth and religiosity through the ideal of rational theoretical thought. The synthesis of Being and Becoming, undertaken by Plato, was itself a philosophical transformation of the Orphic religious synthesis between Apollo and Dionysus. The Orphic views regarding anthropology, eschatology, and theogony, were all adopted and transformed by Plato.

As I already noted in Chapter One, classical Greek scholarship of the 19th century generally recognised, and gave due weight, to the influence of Orphism upon Plato. The critical trend within early 20th century scholarship, however, was to downplay, if not radically deny, any significant Orphic movement within the archaic and early classical periods of Greek history. As such, Orphism has today often been neglected as a context in which to understand Plato. Contemporary Platonic scholarship predominantly only ever considers Plato's treatment of mathematics within the context of his overarching metaphysics. It therefore ignores this pivotal Orphic religious context for Platonic mathematics. By locating Plato within this Orphic framework we recover a *richer, wider*, and more *faithful* interpretive framework for Platonic scholarship, and most significantly with regards to Plato's treatment of mathematics itself.

By looking back to Plato, we are able to learn much relating to both theoretical thought, and theoretical mathematics. This thesis, I hope, has contributed in its own unique way to the already significant and growing field of *historical* research concerning the role of mathematics within the philosophy of Plato.

WORKS CITED

- Abraham, Gerald. *The Consise Oxford History of Music*. Oxford: Oxford University press. 1990 [1979].
- Adam, J. *The Republic of Plato*. 2 Vols. London: Cambridge University Press. 1902.
- Arbman, Ernst. "Untersuchungen zur primitiven Seelenvorstellungen mit besonderer Rucksicht auf Indien, I". In, *Le Monde Oriental* 20, 1926, pp.85-222.
- Athenagoras of Athens. *Apology*. In, Roberts and Donaldson (eds.). *The Ante-Nicene Fathers*. Vol.2. Peabody, Massachusetts: Hendrickson Publishers, Inc. 1999 (1885).
- Barnes, Jonathan (ed.). *The Complete Works of Aristotle*. 2 Vols. Princeton: Princeton University Press. 1995 (1984).
- Bestor, Tom. *Study Guide on Plato's "Two Worlds" Dialogues*. Palmerston North, New Zealand: Massey University, Department of Philosophy. 1997.
- Bickel, Ernst. "Homerischer Seelenglaube; geschichtliche Grundzuge menschlicher Seelenvorstellungen". In, *Schriften der Konigsberger Gelehrten Gesellschaft*, 1. Jahr, Heft 7. Berlin. 1925.
- Blackson, Thomas A. *Inquiry, Forms, and Substances: A Study in Plato's Metaphysics and Epistemology*. Dordrecht – Boston – London: Kluwer Academic Publishers. 1995.
- Bohme, J. *Die Seele und das Ich im homerischen Epos*. Leipzig. 1929.
- Bos, A. P. "Dooyeweerd and de Wijsbegeerte van de Oudheid". In, Geertsema, H. G. *et al.* (eds.). *Herman Dooyeweerd 1894 - 1977*. Kampen: Kok. 1994, pp.218-221.
- _____. *In de Greep van de Titanen*. Amstredam: Buijten en Schipperheijn. 1991.
- Boyle, A. J. "Plato's Divided Line: Essay I The Problem of Dianoia". In, *Apeiron*, 7(2), 1973.
- Bremmer, Jan. *The Early Greek Concept of the Soul*. Princeton: Princeton University Press. 1983.
- Burkert, Walter. *Lore and Science in Ancient Pythagoreanism*. Minar, Edwin L. (trans.). Cambridge, Massachusetts: Harvard University Press. 1972.
- Bury, R. G. (trans.). *Plato — with an English Translation: Laws*. 2 Vols. Loeb Classical Library. London: William Heinemann Ltd. & Cambridge, Massachusetts: Harvard University Press. 1952.

- _____. *Plato — with an English Translation: Timaeus, Critias, Cleitophon, Menexenus, Epistles*. Loeb Classical Library. London: William Heinemann Ltd. & Cambridge, Massachusetts: Harvard University Press. 1960.
- Caird, G. B. *The Language and Imagery of the Bible*. Philadelphia: The Westminster Press. 1980.
- Cassirer, Ernst. *An Essay on Man*. New Haven: Yale University Press. 1944.
- _____. *Language and Myth*. Langer, Susanne K. (trans.). New York: Dover Publications Inc. 1946,
- _____. *The Philosophy of Symbolic Forms*. Manheim, Ralph (trans.), 3 Vols. New Haven: Yale University Press. 1955.
- Cherniss, Harold F. *The Riddle of the Early Academy*. Berkeley: University of California Press. 1945.
- Clarke, Michael. *Flesh and Spirit in the Songs of Homer: A Study of Words and Myths*. Oxford: Clarendon Press. 1999.
- Clement of Alexandria. *Stromata*. In, Roberts and Donaldson (eds.). *The Ante-Nicene Fathers*. Vol.2. Peabody, Massachusetts: Hendrickson Publishers, Inc. 1999 (1885).
- Cohen, S. Marc; Curd, Patricia; and Reeve, C. D. C. (eds.). *Readings in Ancient Greek Philosophy from Thales to Aristotle*. Indianapolis – Cambridge: Hackett Publishing Company, Inc. 1995.
- Cooper, John M. (ed.). *Plato — Complete Works*. Indianapolis – Cambridge: Hackett Publishing Company. 1997.
- Cornford, Francis MacDonald. *From Religion to Philosophy: A Study in the Origins of Western Speculation*. London: Edward Arnold. 1912.
- _____. *Greek Religious Thought from Homer to the Age of Alexander*. London and Toronto: J.M. Dent & Sons Ltd.; New York: E.P. Dutton & Co. 1923.
- _____. *Plato's Cosmology*. London: Kegan Paul, Trench, Trubner & Co. Ltd; New York: Harcourt, Brace and Company. 1937.
- Dillon, John. *The Heirs of Plato: A Study of the Old Academy (347 – 274 BC)*. Oxford: Clarendon Press. 2003.
- _____. *The Middle Platonists: A Study of Platonism 80 B.C. to A.D. 220*. London: Duckworth. 1977.

- Diogenes Laertius. *Lives of Eminent Philosophers*. Hicks, R. D. (trans.). 2 Vols. Loeb Classical Library. London: William Heinemann Ltd. & Cambridge, Massachusetts: Harvard University Press. 1950.
- _____. *The Life of Pythagoras*. In, Guthrie, Kenneth Sylvan (compiled and trans.). *The Pythagorean Sourcebook and Library: An Anthology of Ancient Writings Which Relate to Pythagoras and Pythagorean Philosophy*. Fideler, David R. (intro. and ed.). Grand Rapids: Phanes Press. 1987 – 1988.
- Dodds, E. R. *The Greeks and the Irrational*. Berkeley and Los Angeles: University of California Press. 1951.
- Dooyeweerd, Herman. *A New Critique of Theoretical Thought*. Freeman, David H. and Young, William S. (trans.). Amsterdam: Uitgeverij H. J. Paris & Philadelphia: The Presbyterian and Reformed Publishing Company. 1953 – 1958.
- Euclid. *Elements*. Translated into English in, Heath, Sir Thomas L. (trans., intro., and commentary). *The Thirteen Books of Euclid's Elements*. 3 Vols. Cambridge: Cambridge University Press. 1908.
- Feibleman, James K. *Religious Platonism*. London: Ruskin House, George Allen & Unwin Ltd. 1959.
- Forrest, George. "Greece: The History of the Archaic Period". In, Boardman, Griffin, and Murray (eds.). *The Oxford History of the Classical World*. Oxford – New York: Oxford University Press. 1995 (1986), pp.19-49.
- Freeman, Kathleen. *Ancilla to The Pre-Socratic Philosophers: A Complete Translation of the Fragments in Diels, Fragmente der Vorsokratiker*. Oxford: Basil Blackwell. 1948.
- Freudenthal, Hans. "What is Algebra and What has it been in History?". In, *Archive for History of Exact Sciences*, Vol. 16, 1976/77, pp.189-200.
- Gagarin, Michael and Woodruff, Paul. *Early Greek Political Thought from Homer to the Sophists*. Cambridge: Cambridge University Press. 1995.
- Gelb, I. J. *A Study of Writing*. Chicago: University of Chicago Press. 1952 (rev. ed. 1963).
- Gillings, Richard J. *Mathematics in the Time of the Pharaohs*. Cambridge, Massachusetts; London, England: The MIT Press. 1972.
- Goody, Jack. *The Interface between the Written and the Oral*. Cambridge: Cambridge University Press. 1987.

- _____, and Watt, Ian. "The Consequences of Literacy". In, Kintgen, Kroll, and Rose (eds.). *Perspectives in Literacy*. Carbondale and Edwardsville: Southern Illinois University Press. 1988, pp.3-27.
- Gulley, Norman. *Plato's Theory of Knowledge*. London: Methuen and Co. Ltd. 1962.
- Guthrie, Kenneth Sylvan (compiled and trans.). *The Pythagorean Sourcebook and Library: An Anthology of Ancient Writings Which Relate to Pythagoras and Pythagorean Philosophy*. Fideler, David R. (intro. and ed.). Grand Rapids: Phanes Press. 1987 – 1988.
- Guthrie, W. K. C. *A History of Greek Philosophy*, Vol.III, "The Fifth Century Enlightenment". Cambridge: Cambridge University Press. 1969.
- _____. *Orpheus and Greek Religion: A Study of the Orphic Movement*. New York: W. W. Norton & Company, Inc. 1966.
- Haik-Ventoura, Suzanne. *The Music of the Bible Revealed: The Deciphering of a Millenary Notation*. Wheeler, John (ed.), and Weber, Dennis (trans.). Sheffield Academic Press. 2nd Revised Edition. 1991.
- Hamilton, Edith and Cairns, Huntington (eds.). *Plato - The Collected Dialogues*. Princeton: Princeton University Press. 1961.
- Havelock, Eric. *Origins of Western Literacy*. Monograph Series/14. Ontario, Canada: The Ontario Institute for Studies in Education. 1976.
- _____. *Preface to Plato*. Cambridge, Massachusetts: Belknap Press of Harvard University Press. 1963.
- _____. *Prologue to Greek Literacy*. Cincinnati: University of Cincinnati. 1971.
- _____. "The Linguistic Task of the Presocratics". In, Robb, Kevin (ed.). *Language and Thought in early Greek Philosophy*. La Salle, Illinois: The Hegeler Institute [the Monist Library of Philosophy]. 1983.
- _____. *The Literate Revolution in Greece and its Cultural Consequences*. Princeton, New Jersey: Princeton University Press. 1982.
- Heath, Sir Thomas L. *A History of Greek Mathematics*, Vol.1 "From Thales to Euclid". Oxford: Clarendon Press. 1921.
- Herodotus. *Histories*. Rawlinson, George (trans.). Everyman's Library. London: J. M. Dent & Sons Ltd. 1949 (1910).
- _____. *Histories*. Selincourt, Aubrey de (trans.). John Marincola (rev.). London: Penguin Books. 2003 [1954].

- Hesiod. *Theogony*. In, Evelyln-White, Hugh G. (trans.). *Hesiod, the Homeric hymns, and Homeric*. Loeb Classical Library. London: William Heinemann Ltd. & Cambridge, Massachusetts: Harvard University Press. 1959.
- _____. *Theogony*. In, Wender, Dorothea (trans.). *Hesiod: Theogony/Works and Days, Theognis: Elegies*. Penguin Books. 1973.
- _____. *Works and Days*. In, Wender, Dorothea (trans.). *Hesiod: Theogony/Works and Days, Theognis: Elegies*. Penguin Books. 1973.
- Homer. *Iliad*. Lattimore, R. (trans.). Chicago & London: University of Chicago Press. 1951.
- _____. *Odyssey*. E. V. and D. C. H. Rieu (trans.). Penguin Books. 1991.
- Huffman, Carl A. *Philolaus of Croton — Pythagorean and Presocratic: A Commentary on the Fragments and testimonia with Interpretive Essays*. Cambridge: Cambridge University Press. 1993.
- Iamblichus. *The Life of Pythagoras*. In, Guthrie, Kenneth Sylvan (compiled and trans.). *The Pythagorean Sourcebook and Library: An Anthology of Ancient Writings Which Relate to Pythagoras and Pythagorean Philosophy*. Fideler, David R. (intro. and ed.). Grand Rapids: Phanes Press. 1987 – 1988.
- Jaeger, Werner. “The Greek Concept of Immortality”. In, Stendhal, Krister (ed.). *Immortality and Resurrection*. New York: The MacMillan Company. 1965.
- _____. *Theology of the Early Greek Philosophers: The Gifford Lectures 1936*. Oxford: At the Clarendon Press. 1947.
- Kahn, Charles H. *Pythagoras and the Pythagoreans: A Brief History*. Indianapolis – Cambridge: Hackett Publishing Company. 2001.
- Karasmanis, Vassilis. “Plato’s Republic: The Line and the Cave”. In, *Apeiron*, 21, 1988.
- Kern, Otto. *Orphicorum Fragmenta*. Berolini: Apud Weidmannos. 1922.
- Kirk, G. S. *The Nature of Greek Myths*. London: Penguin Books. 1974.
- _____, Raven, J. E., and Schofield, M. *The Presocratic Philosophers: A Critical History with a Selection of Texts*. 2nd Edition. Cambridge: Cambridge University Press. 1983.
- Klein, Jacob. *Greek Mathematical Thought and the Origin of Algebra*. Brann, Eva (trans.). Cambridge, Massachusetts – London: The M. I. T. Press. 1968.
- Kline, Morris. *Mathematical Thought from Ancient to Modern Times*. Vol.1. New York – Oxford: Oxford University Press. 1972.

- Kramer, Hans Joachim. *Plato and the Foundations of Metaphysics: A Work on the Theory of the Principles and Unwritten Doctrines of Plato with a Collection of the Fundamental Documents*. John R. Catan (ed. and trans.). New York: State University of New York. 1990.
- Levin, Flora R. *The Harmonics of Nicomachus and the Pythagorean Tradition*. American Classical Studies, No:1. New York: Interbook. 1975.
- Liddell and Scott. *A Lexicon: Abridged from Liddell and Scott's Greek-English Lexicon*. Oxford: Clarendon Press. 1958.
- Linforth, I. *The Arts of Orpheus*. New York: Arno Press. 1973 [1941].
- Longrigg, James. "Thales". In, Gillispie (chief ed.). *Dictionary of Scientific Biography*. Vol.XIII. New York: Charles Scribner's Sons. 1976, pp.295-298.
- Macchioro, V. *Eraclito: nouvi studi sull' Orphismo*. Bari. 1922.
- Martin, Luther H. *Hellenistic Religions — An Introduction*. New York: Oxford University Press. 1987.
- Maziarz, Edward A, and Greenwood, Thomas. *Greek Mathematical Philosophy*. New York: Frederick Ungar Publishing Co. 1968.
- McGahey, Robert. *The Orphic Movement: Shaman to Poet-Thinker in Plato, Nietzsche, & Mallarme*. New York: State University of New York Press. 1994.
- McKirahan, Richard D. Jr. *Philosophy Before Socrates: An Introduction with Texts and Commentary*. Indianapolis – Cambridge: Hackett Publishing Company. 1994.
- Merkelbach, R. and West, M. L. (eds.). *Fragmenta Selecta*. In, Solmsen F. *Hesiodi Opera*. 3rd edition. Oxford. 1990.
- Morgan, Michael L. *Platonic Piety: Philosophy and Ritual in Fourth-Century Athens*. New Haven – London: Yale University Press. 1990.
- Murray, Penelope (ed.). *Plato on Poetry*. Cambridge: Cambridge University Press. 1996.
- Netz, Reviel. *The Shaping of Deduction in Greek Mathematics: A Study in Cognitive History*. Cambridge: Cambridge University Press. 1999.
- Nietzsche, Friedrich. *The Birth of Tragedy from the Spirit of Music*. Fadiman, Clifton P. (trans.). In, *The Philosophy of Nietzsche*. New York: The Modern Library, Random House. Undated.
- Nilsson, Martin P. *A History of Greek Religion*. Fielden, F. J. (trans.). 2nd edition. Oxford: Clarendon Press. 1949.

- O'Grady, Patricia F. *Thales of Miletus: The Beginnings of Western Science and Philosophy*. Aldershot: Ashgate Publishing Limited. 2002.
- Ong, Walter, J. *Orality and Literacy: The Technologizing of the World*. London and New York: Methuen. 1982.
- Otto, W. F. *Die Manen oder Von den Urformen des Totenglaubens*. Berlin. 1923.
- Parker, Robert T. "Greek Religion". In, Boardman, Griffin, and Murray (eds.). *The Oxford History of the Classical World*. Oxford – New York: Oxford University Press. 1995 (1986), pp.254-274.
- Pindar. *Olympian Odes, Pythian Odes, Nemean Odes, Isthmian Odes, Fragments*. William H. Race (ed. and trans.). 2 Vols. Loeb Classical Library 56, 485. London: William Heinemann Ltd. & Cambridge, Massachusetts: Harvard University Press. 1997.
- Porphyry. *The Life of Pythagoras*. In, Guthrie, Kenneth Sylvan (compiled and trans.). *The Pythagorean Sourcebook and Library: An Anthology of Ancient Writings Which Relate to Pythagoras and Pythagorean Philosophy*. Fideler, David R. (intro. and ed.). Grand Rapids: Phanes Press. 1987 – 1988.
- Pratt, Louise H. *Lying and poetry from Homer to Pindar: Falsehood and Deception in Archaic Greek Poetics*. Michigan: The University of Michigan Press. 1993.
- Pritchard, Paul. *Plato's Philosophy of Mathematics*. Sankt Augustin: Academia Verlag. 1995.
- Proclus. *A Commentary on the First Book of Euclid's Elements*. Morrow, Glenn R. (notes and trans.). Princeton, New Jersey: Princeton University Press. 1970.
- Rappe, Sara. *Reading Neoplatonism: Non-discursive Thinking in the Texts of Plotinus, Proclus, and Damascius*. Cambridge: Cambridge University Press. 2000.
- Regenbogen, O. "Δαιμόνιον ψυχῆς φῶς: Erwin Rohdes Psychê und die neuere Kritik". 1948. In, Regenbogen, O. *Kleine Schriften*. Munich. 1961, pp.1-28.
- Rohde, Erwin. *Psychê — Seelenkult und Unsterblichkeitsglaube der Griechen*. Tübingen. 1921. English translation: *Psychê*. New York: Harcourt, Brace. 1925.
- Rorty, Richard. *Philosophy and the Mirror of Nature*. Princeton, New Jersey: Princeton University Press. 1979.
- Runia, D. T. "Dooyeweerd, Bos, and the Grondmotief of Greek Culture". In, *Philosophia Reformata*, 54/2. (1989), pp.167-168.

- Sextus Empiricus. *Outlines of Pyrrhonism*. In, Mates, Benson. *The Skeptic Way: Sextus Empiricus's Outlines of Pyrrhonism*. New York – Oxford: Oxford University Press. 1996.
- Sharp, Stephen. *Platonic Love and the One Unforgivable Sin*. PhD dissertation. University of Canterbury. 2002.
- Shorey, Paul (trans.). *The Republic — with an English Translation*. 2 vols. Loeb Classical Library. London: William Heinemann Ltd. & Cambridge, Massachusetts: Harvard University Press. 1987.
- _____. *The Unity of Plato's Thought*. Archon Books. 1968 (1903).
- Sidgwick, H. "On a Passage in Plato, Republic, B vi". In, *JPh*, ii (1869), pp.96-103.
- Silverman, Allan. *The Dialectic of Essence: A Study of Plato's Metaphysics*. Princeton: Princeton University Press. 2002.
- Snell, Bruno. *The Discovery of the Mind*. Oxford. 1953.
- Szlezak, Thomas A. *Reading Plato*. Graham Zanker (trans.) London and New York: Routledge. 1999 [1993 original German edition].
- Taran, L. *Speusippus of Athens*. Leiden. 1981.
- Theognis. *Elegies*. In, Wender, Dorothea (trans.). *Hesiod: Theogony/Works and Days, Theognis: Elegies*. Penguin Books. 1973.
- Theon of Smyrna. *Mathematics Useful for Understanding Plato*. Lawlor, Robert and Deborah (trans.). San Diego: Wizards Bookshelf. 1979.
- Thiselton, Anthony C. *New Horizons in Hermeneutics*. Grand Rapids, Michigan: Zondervan Publishing House. 1992.
- Unguru, Sabetai. "On the Need to Rewrite the History of Greek Mathematics". In, *Archive for the History of Exact Sciences*, Vol.15, No:1, 1975, pp.67-114.
- Wedberg, Anders. *Plato's Philosophy of Mathematics*. Stockholm: Almqvist & Wiksell. 1955.
- West, M. L. *Iambi et Elegi Graci*. 2nd edition. Oxford – New York: Oxford University Press. 1989 – 1992.
- _____. *The Orphic Poems*. Oxford: Clarendon Press. 1983.
- Wolff, Hans Wolter. *Anthropologie des Alten Testaments*. Munich: Chr. Kaiser Verlag. 1973. Translated into English as, *Anthropology of the Old Testament*. London: SCM Press Ltd; Philadelphia: Fortress Press. 1974.

- Woodhead, W. D. (ed. and trans.). *Plato — Socratic Dialogues: Containing the Euthyphro, the Apology, the Crito, the Phaedo and the Gorgias*. Edinburgh — London: Thomas Nelson and Sons Ltd. 1958.
- van der Waerden, B. L. "Defense of a 'Shocking' Point of View". In, *Archive for the History of Exact Sciences*, Vol.15, No:1, 1975, pp.199-210.
- _____. *Science Awakening*, Vol.1. Dresden, Arnold (trans.). Groningen, Hollad: P. Noordhoff Ltd. 1954.
- Vunderink, Ralph W. "Ground Motifs — A Modest Revision". In, Strauss, D.F.M. and Botting, Michelle (eds.). *Contemporary Reflections on the Philosophy of Herman Dooyeweerd - A Supplement to the Collected Works of Herman Dooyeweerd*. Lewiston-Queenston-Lampeter: The Edward Mellen Press. 2000.
- Young, W. "Herman Dooyeweerd". In, Hughes, Philip Edgcumbe (ed.). *Creative Minds in Contemporary Theology*. Grand Rapids: Eerdmans. 1966.
- Zeyl, Donald J. *Plato — Timaeus*. Indianapolis — Cambridge: Hackett Publishing Company. 2000.